10¢ A COPY

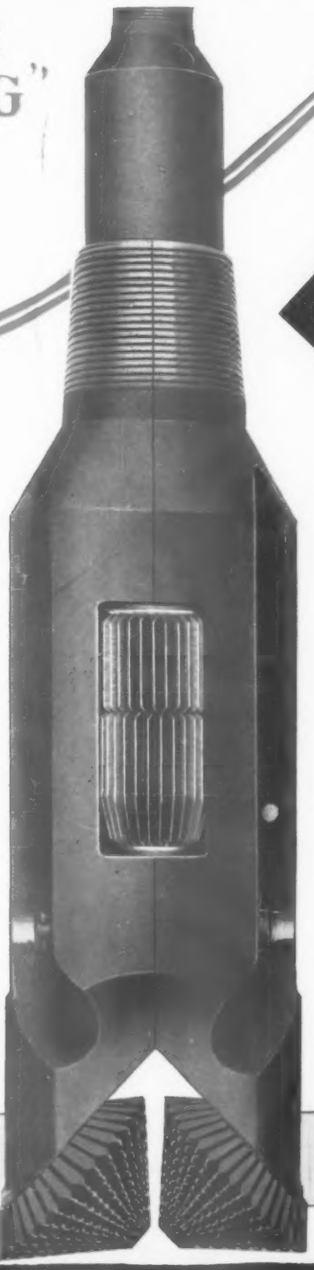
The OIL WEEKLY

Exclusively Devoted To The Production and Transportation of Oil and Gas

August 10, 1928 **Volume 50. No. 8**

"AS IN THE BEGINNING"

NO TOOL SHALL BE MAN--UFACTURED UNLESS IT IS THE BEST OF ITS KIND



HUGHES TOOL CO.

Main Office and Plant
HOUSTON,
TEXAS

The cornerstone of the Hughes Tool Company laid down by Howard R. Hughes, Sr., is still the foundation of its business life. This ideal, steadily adhered to for nearly twenty years, has caused the growth, from a small shop to a great organization, serving the world wide oil industry.

By MacDONALD

SOLD BY **SUPPLY STORES EVERYWHERE**

One tool that makes any type manifold

COMBINATION TUBING CONTROL HEAD and TUBING BLOWOUT PREVENTER

THE RAMS of this tool, with their solid rubber packing, fit perfectly around tubing and effect a perfect seal under pressures up to 1200 lbs. per square inch. This single tool, without additional parts constitutes an ideal control head—

- —for running tubing under pressure
- —for flowing wells
- —for air and gas lifts
- —for gas wells
- —for pumping wells

Write for Descriptive Literature

Note the Simplicity of this Assembly

Guaranteed to 1200 Lbs.

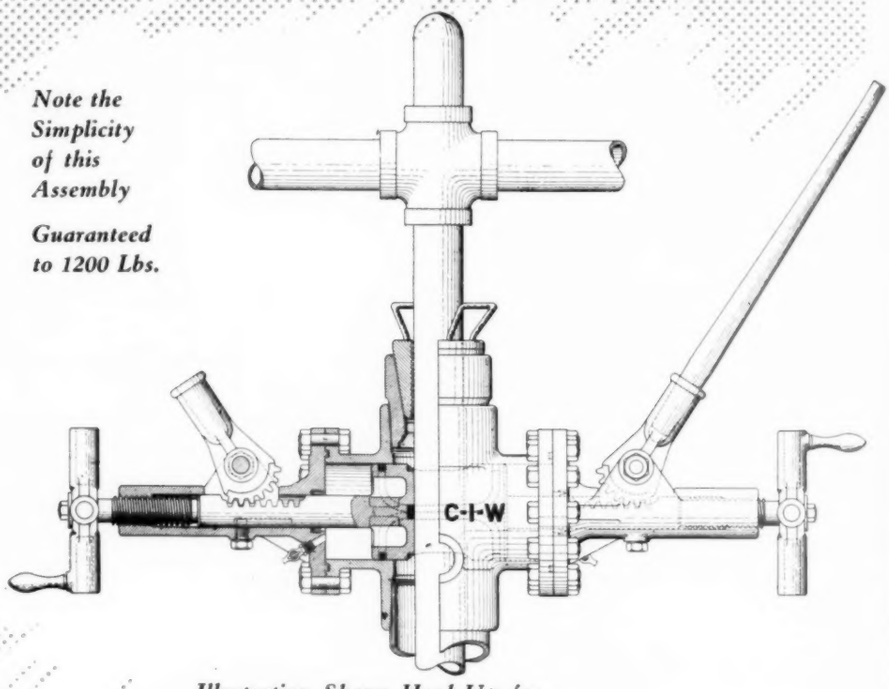


Illustration Shows Hook-Up for

Air or Gas Lift

AIR OR GAS can be inserted in the port opening in the lower half of control head, and oil delivered through tubing—or air or gas can be inserted through tubing and oil produced through casing and delivered through port openings in control head—or an air or gas line can be inserted in the tubing, and oil delivered back through the tubing. By using an air line to the tubing, and another air line to the casing area, the well can be "rocked" at will, by manipulating the manifold.

CAMERON IRON WORKS

Manufacturers of
Oil Well Supplies and Specialties

HOUSTON, TEXAS

The OIL WEEKLY. Issued weekly by the Gulf Publishing Co., 33 01 Buffalo Drive, Houston, Texas. Subscription price $1.00 per year; 10 cents per copy. Entered as second-class mail matter December 23, 1 916, at the post office at Houston, Texas, under act of March 3, 1879.

Leadership

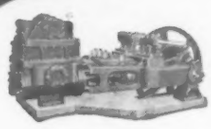
The responsibilities of ruling one of the world's mightiest nations are exacting—but America has never failed in an emergency to produce a man particularly well fitted to pilot the ship past the danger zone.

Leadership in the field of oil industry pumps also has its responsibilities. Changing conditions are constantly bringing about the need for new pumping equipment. GASO owes much of its success to the promptness and efficiency with which these needs have been met.

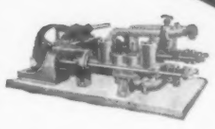
Our 64 page catalog is a handbook of pumping information. Shall we send you your copy?

GASO PUMP & BURNER MFG COMPANY

Tulsa · Oklahoma



Gaso Model No. 1018 is an exceptionally popular suction pump for use in stations and in the field. It has a large capacity, is sturdily constructed, and offers amazing accessibility of parts.



Model No. 1012 is built especially for high-pressure duty. 130 to 204 gallons capacity against 700 to 900 pound pressures. It thrives on heavy work. For detailed information, ask any pipe-line operator!

GASO PUMPS
for every oil industry need

Say you saw it in The OIL WEEKLY

HILL & FOSTER AUTOMATIC CATHEAD

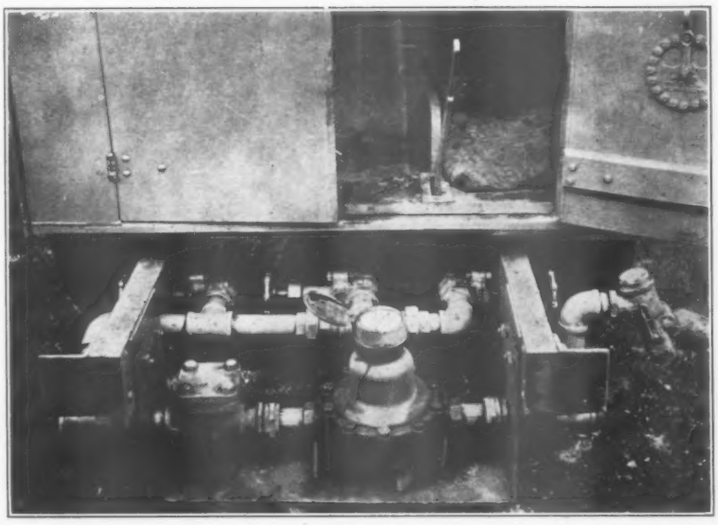
Eliminates all hazards common to ordinary cathead operation

Descriptive Bulletin 15N On Request

THE NATIONAL SUPPLY COMPANIES

Say you saw it in The OIL WEEKLY

Your Tank Wagon



Is It Equipped with a Meter for Accurate Measurement ?

Keystone Oil and Gasoline Meters are giving satisfactory service on numerous truck tanks throughout the country. Both buyer and distributor are assured of accurate measurement.

The totalizing register gives an absolute check on amount sold over any given period of time from each individual truck.

These meters are also adaptable for use on storage tanks, distribution lines, railway tank cars and in fact any service requiring accurate measurement and record.

Keystone Oil and Gasoline Meters

PITTSBURGH EQUITABLE METER COMPANY
PITTSBURGH, PA.

BRANCH OFFICES
New York, New York.
Chicago, Illinois.
Dallas, Texas.
Los Angeles, Cal.
Tulsa, Oklahoma.
Seattle, Washington.
Columbia, S. Carolina.
Salt Lake City, Utah.
Kansas City, Missouri.

East is West

Everywhere

It's a Wilson

Whether it's Borneo, or Venezuela, or Signal Hill, or Seminole,

It's a Wilson

There are more Wilson Elevators and Wilson Tongs in service than any other two makes combined.

95% of all deep wells are serviced with Wilson Tools.

Wilson 2-Step Spring-Latch Casing Tong

Wilson Double Extra-Heavy, Side-Door Speed Elevator

Wilson Oil Tools Corp.
DISTRIBUTORS FOR
Wilson & Willard Mfg. Co.
Factory and Distributor's Office — 3301 East Vernon Ave. — Los Angeles, Calif.

Factory Representatives:

TULSA, OKLA 409 Atlas Life Bldg.	HOUSTON, TEXAS 2201 Breckenridge St.
FORT WORTH, TEX. 814 Dan Waggoner Bldg.	BIG SPRING, TEXAS 15 New Lester Fisher Bldg.

Say you saw it in The OIL WEEKLY

A Letter from Harry G. Nye

Nye Self-Locking Vise

No.	Pipe	Vise, Complete Net
00	⅛ to 2 "	$2.82
10	⅛ to 2½"	3.34
20	¼ to 3½"	5.00
30	¼ to 4½"	7.33

Nye Drop Forged Pipe Cutter

No. 1-A	⅛ to 1¼"	$2.25 net
No. 2-A	¼ to 2"	3.00 net
No. 3-A	1 to 3"	5.00 net

Nye Saunders Pipe Cutter

No. 1	$1.80 net
No. 2	2.70 net
No. 3	6.60 net
No. 4	10.80 net
No. 5	16.80 net

NYE (Toledo Type) Chasers Fit Nos. 1, 1A and 2 NYE (Toledo Type) Stocks

Each set is guaranteed in every particular. Will cut much easier than other similar dies.

No. 1, 1" to 1½"	$ .75 per-set net
No. 1, 2"	$1.25 per set net
No. 2, 2½" to 4"	$3.60 per set net

NYE NO. 2
(Toledo Type)
Geared Threading Device Improved

Capacity 2½ in. to 4 in. inclusive. This tool has the same rugged construction as the No. 1 and No. 1A Nye Receding stocks. A ratchet handle and a spider hub threaded for 1-inch pipe is furnished as standard equipment.

Net price complete $50.00
West of Rocky Mountains .. 55.00

FREE TRIAL—ABSOLUTELY GUARANTEED

To the Oil Men of the U. S. A.

Fellow Citizens:

Well, I see where you will soon be able to take a train in New York to Ohio, and then an airplane to Kansas, and then a train to New Mexico, and then a plane again to California, and make the whole trip in less time than it used to take Grandpap to go up to the county-seat.

The point is that you will be able to fly days and sleep nights—that is, if the women in lower 6 don't talk all night, the man in upper 3 doesn't snore, and the baby in lower 10 doesn't cry, or the poker game in the drawing room doesn't get too noisy.

Personally, I would rather take a chance on getting some sleep in an airplane than I would in a Pullman, and it is no fault of the Pullman company. I have always been considered a great advertiser, but I take off my hat to the man who gets on a Pullman at midnight.

But the midnight squawker is deaf and dumb compared to the daylight talker. There are a lot of people who think that when they get up everybody ought to get up. Many a fire department turns out with less noise than a lot of people getting out of a berth.

Now, I am glad to hear that you sold seven cars of pipe last week, or that Mary's baby has a new tooth, or how you stand right up and talk back to your boss, or how much the firm thinks of you, but I don't want to hear it at any 6:30 a. m.

Yet that is the time that a lot of passengers pick out to do their broadcasting; not that their personal affairs are of any great public interest. They will never see these people in this car again, and these people will never see them again; or so they hope.

But they mean to tell them about their business and family affairs, while they can. So they engage a berth, when what they ought to do is to hire a hall. They might at least let us sleep and write us about it later.

There is a time for all things. It is a well-known fact that Nye tools are the best pipe-cutting tools on earth, and this is good news to plumbers, but you don't want to hear about it at 6:30 a. m. Work faster, operate easier, and last longer—that's them.

Faithfully yours,

HARRY G. NYE,

Otherwise Known As

THE NYE TOOL & MACHINE WORKS

4120-30 Fullerton Avenue

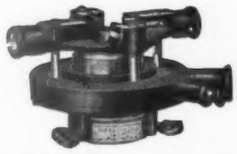
Chicago, Ill.

(Copyright, 1928, by Harry G. Nye All rights reserved)

The rugged construction and few working parts account for the simplicity and durability of these Nye Receding models. They do the work easily and efficiently.

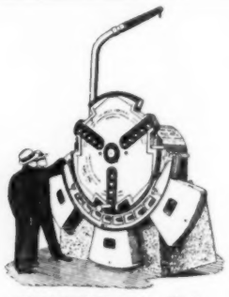
No. 1 Nye Receding Pipe Threader, complete ....$9.60 net
West of Rocky Mountains $10.80

Nye thin blade cutter wheel, made to fit all standard makes of pipe cutters, and guaranteed against breakage in use. Made both in smooth and knurled edge.

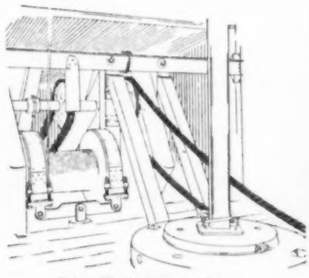


The No. 1A is the same as the No. 1, except that it is equipped with a ratchet for work where space is restricted.

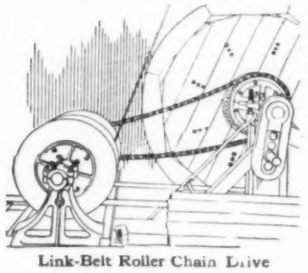
No. 1A Nye Receding Pipe Threader, complete ...$12.00 net
West of Rocky Mountains $13.50



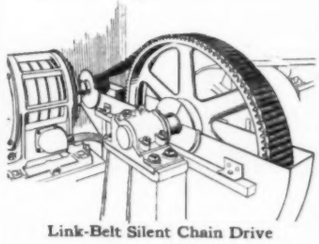
RUF-NEK Pumping Unit



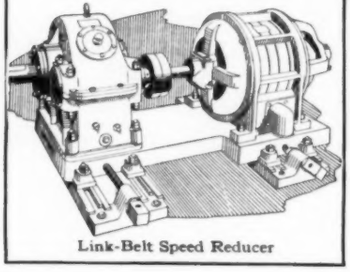
Link-Belt Rotary Chain



Link-Belt Roller Chain Drive



Link-Belt Silent Chain Drive

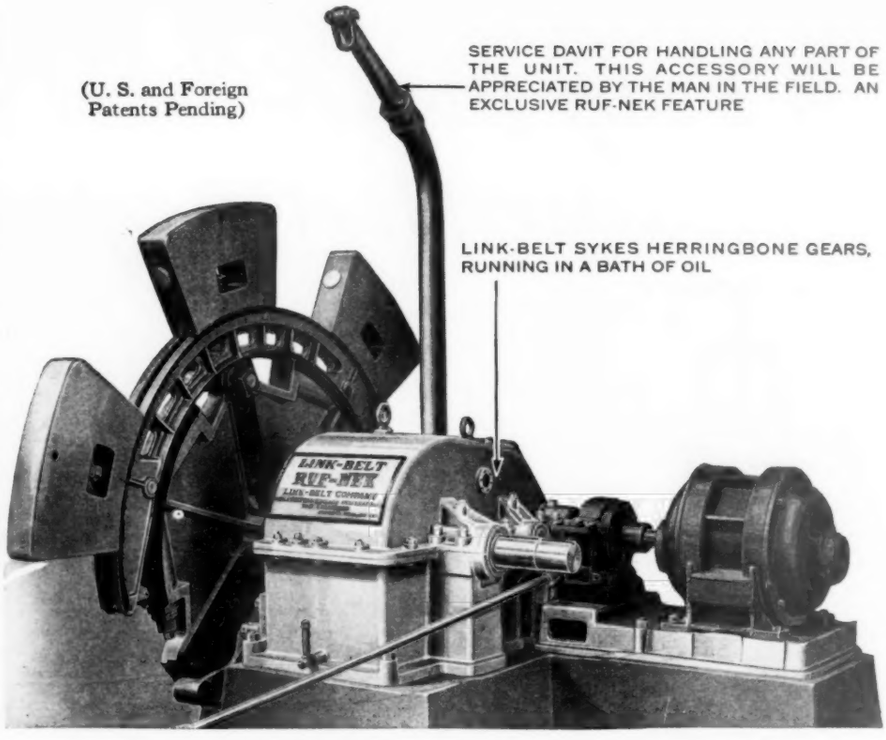


Link-Belt Speed Reducer

(U. S. and Foreign Patents Pending)

SERVICE DAVIT FOR HANDLING ANY PART OF THE UNIT. THIS ACCESSORY WILL BE APPRECIATED BY THE MAN IN THE FIELD. AN EXCLUSIVE RUF-NEK FEATURE

LINK-BELT SYKES HERRINGBONE GEARS, RUNNING IN A BATH OF OIL



RUF-NEK

The Pumping Unit for Oil Wells

THE Ruf-Nek is a unique pumping unit for oil wells, that will drive the draw works, a washout pump, or a small rotary, without additional equipment.

A counterweight mechanism is provided that permits adjustment of the counterweights, so as to produce any desired counter-balancing effect. It is thus possible to balance the pumping load accurately for any and all conditions.

The counterweight mechanism can be quickly and easily detached when unit is used for servicing a well.

The Ruf-Nek is designed, built and backed by Link-Belt. Send for a copy of Book No. 780.

LINK-BELT COMPANY 3487

PHILADELPHIA, 2045 W. Hunting Park Ave. CHICAGO, 300 W. Pershing Rd. INDIANAPOLIS, 200 S. Belmont Ave. LOS ANGELES, 361 S. Anderson St.

Distributors: Texas Iron Works Sales Corporation; The Parkersburg Rig and Reel Co.

LINK-BELT

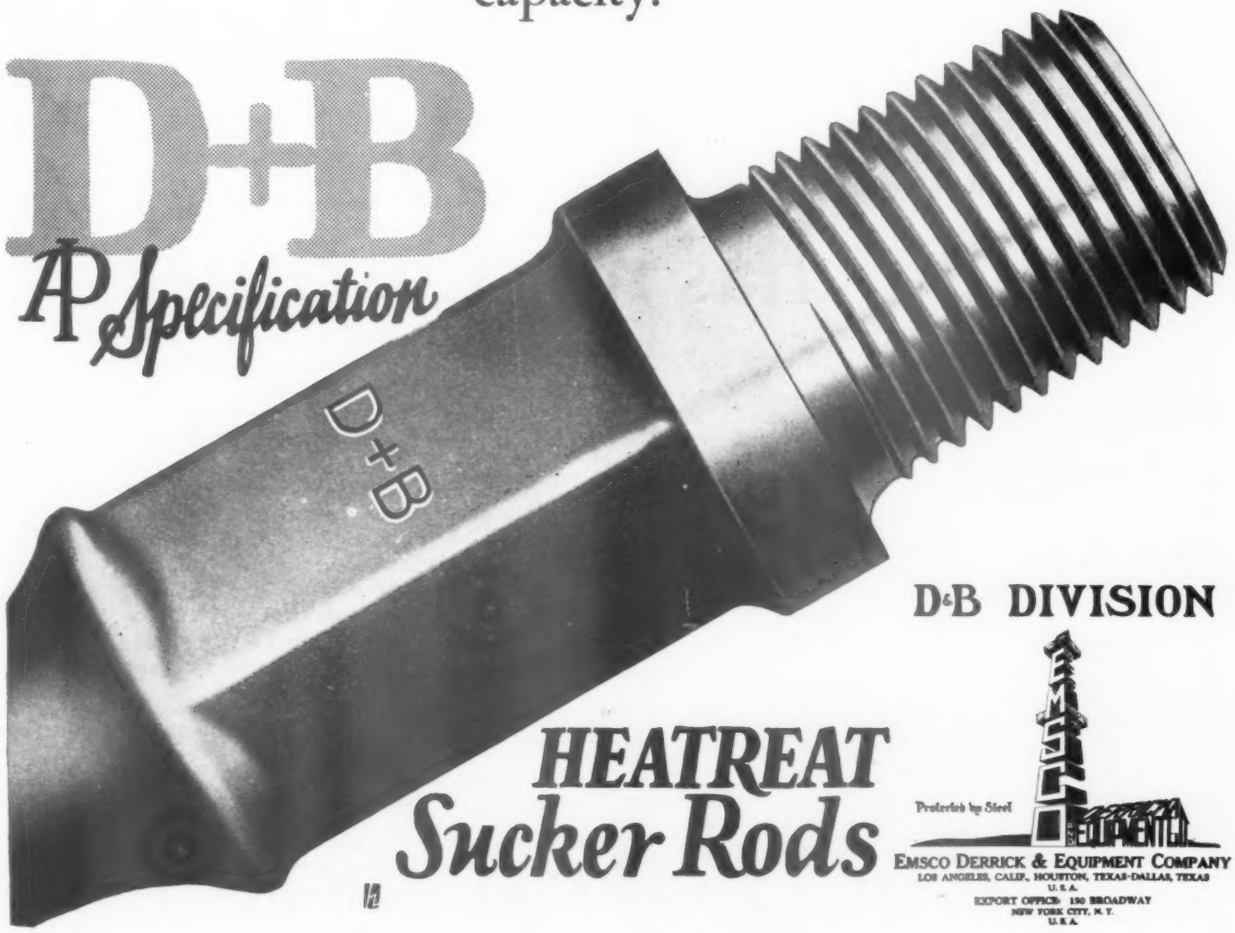
Equipment for the Oil Industry

Say you saw it in The OIL WEEKLY

The most outstanding advance in Sucker Rod Manufacture

Actual well tests covering a 5-month period on more than a *million* feet show a *perfect* record of not one pin break! One string has been tested to a 400% overload capacity.

D&B API Specification

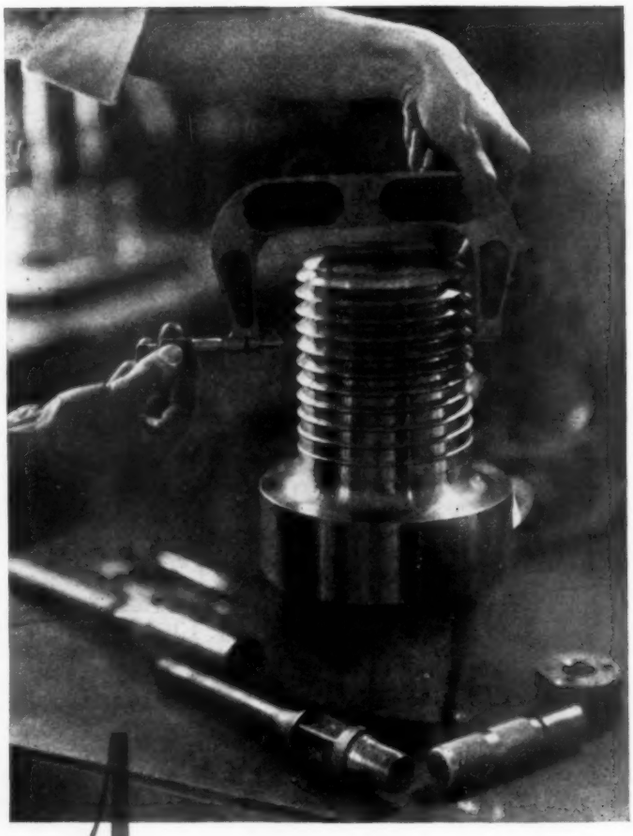


D&B DIVISION

HEATREAT Sucker Rods

Protected by Steel

EMSCO DERRICK & EQUIPMENT COMPANY
LOS ANGELES, CALIF., HOUSTON, TEXAS-DALLAS, TEXAS
U. S. A.
EXPORT OFFICE: 150 BROADWAY
NEW YORK CITY, N. Y.
U. S. A.



Accuracy has no substitute

Axelson standards of precision will not tolerate guesswork in the finish of any part of a Pump or Sucker Rod. New standards of gauging and checking have been developed. Every individual part is an xact duplicate of similar parts, not only in accuracy, but in quality and treatment of metal. Improved methods of gauging permit accuracy standards that were unheard of a few years ago. So each Axelson Product is thoroughly *standardized*. A replacement part to be installed a year or five years from now will prove an exact duplicate of the original part.

Axelson Machine Company
P. O. Box 337, Los Angeles
Tulsa, St. Louis, New York City
Mid-Continent and Eastern Distributors—
Frick-Reid Supply Corporation

Axelson INTERCHANGEABLE PUMPS for INTERNATIONAL SERVICE Pumps & Sucker Rods

You can now buy TRU-LAY WIRE ROPE *quickly and conveniently*

TRU-LAY brand preformed wire lines and CRESCENT brand wire lines are now available through the following supply companies. There is a stocking point close to you—prepared to give you faster, better wire-rope service.

Eastern Sales Representative and Research Engineer — G. H. KLINGLER, Emlenton, Pa.

EASTERN OIL FIELDS

NEW MARTINSVILLE SUPPLY COMPANY, NEW MARTINSVILLE, W. VA.; stocking points at: New Martinsville, W. Va.; Clarksburg, W. Va.; Hundred, W. Va.; Woodsfield, Ohio.

Penn Manufacturing & Supply Company, Washington, Pa.

Elms Brothers Co., Waynesburg, Pa.

LLOYD, SMITH COMPANY, BRADFORD, Pa.; stocking points at: Bradford, Pa.; McDonnell & Brannen, Bolivar, New York; Harris Supply Company, Wellsville, N. Y.

SLICKER PIPE, TOOL & SUPPLY COMPANY, Knox, Pa.

MITCHELL & GRAHAM, EMLENTON, PA.; stock at Clintonville, Pa.

J. A. Blair & Sons, Clintonville, Pa.

MASSETH, PACKER & MACHINE COMPANY, BUTLER, PA.

LAWRENCEVILLE MACHINE COMPANY, LAWRENCEVILLE, ILL.

MID-CONTINENT OIL FIELDS

ATLAS SUPPLY COMPANY, TULSA AND MUSKOGEE, OKLAHOMA; FORT WORTH, TEXAS; stocking points at: Oklahoma: Earlsboro; Ada; Wetumka; Tulsa; Muskogee; Maud; Lovell; Blackwell. TEXAS: Borger; Breckenridge; Pyote; McCamey; Vernon; Ft. Worth; Odessa; Pampa.

THE FARLEY MACHINE WORKS COMPANY, ARKANSAS CITY, KAN.; stocking points at: Kansas: Gorham; Lost Springs; Hutchinson; Arkansas City.

MID-CONTINENT SUPPLY COMPANY, HOUSTON, TEXAS

Pelican Well Tool & Supply Company, Shreveport, La.; stocks at: Shreveport, La.; Smackover, Ark.; Norphlet, Ark.

CALIFORNIA OIL FIELDS

GRINNELL COMPANY of the PACIFIC, 520 Mateo Street, LOS ANGELES, CALIF.

AMERICAN CABLE COMPANY, *Incorporated*

Grand Central Terminal Building, New York, N. Y.

District Offices: Chicago, Detroit, Philadelphia, Pittsburgh, Tulsa, San Francisco, Emlenton, Pa.

An Associate Company of the American Chain Company, *Incorporated*

Dominion Wire Rope Company, *Limited*, Montreal,
Sole Canadian Licensed Manufacturers

Let TRU-LAY WIRE ROPE *cut your cable costs*

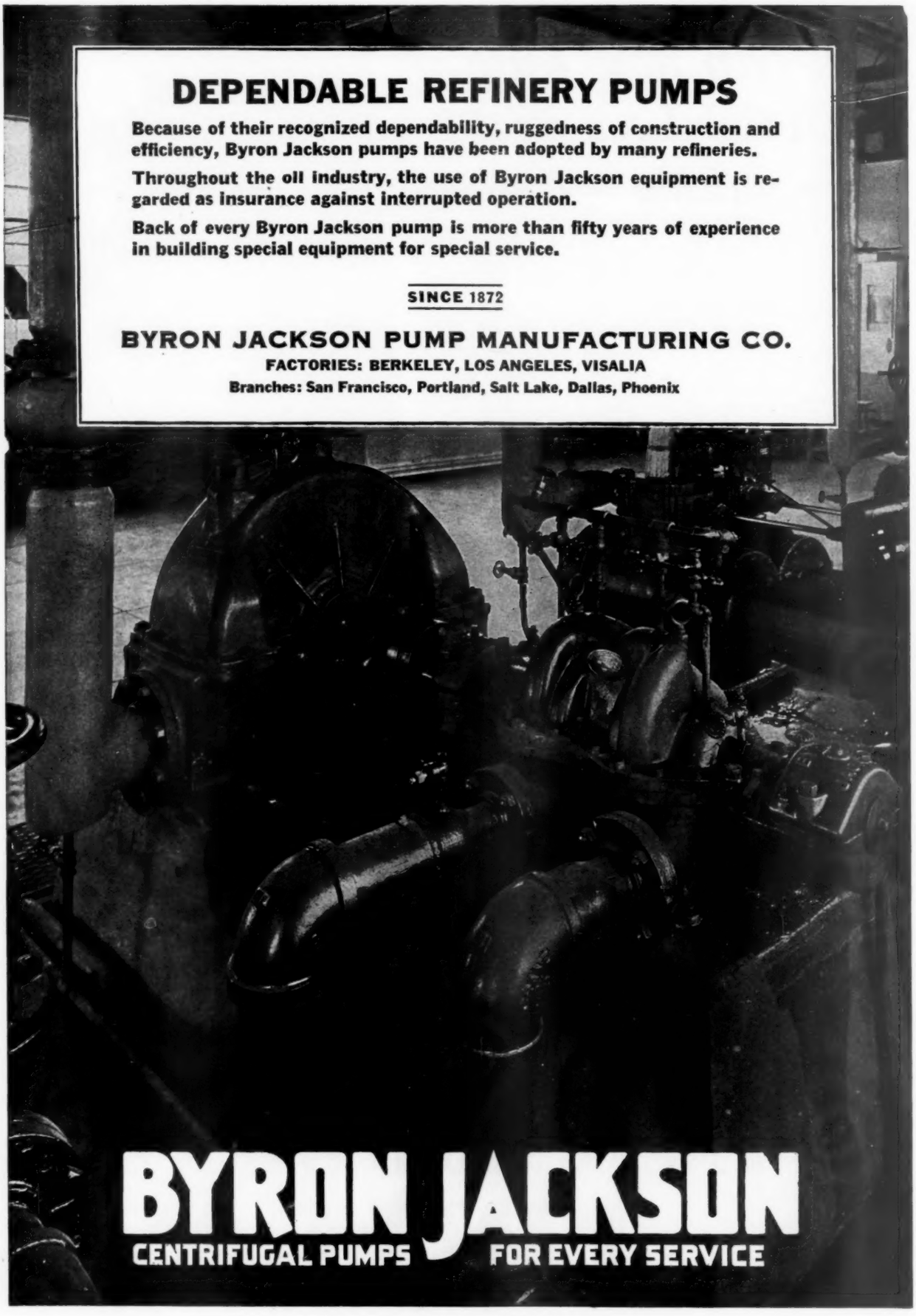
TRU-LAY costs less per year of service. Every wire is preformed—laid in place—not twisted. Torsional stresses are eliminated; all of the strength of all the wires is utilized. And TRU-LAY cuts like bar — no seizing is required. Your name and address bring a sample—test it.

PREFORMED WIRE ROPE

TRADE **TRU-LAY** MARK

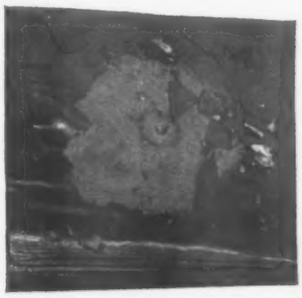
(Reg. U. S. Pat. Off.)

Say you saw it in The OIL WEEKLY


DEPENDABLE REFINERY PUMPS
Because of their recognized dependability, ruggedness of construction and efficiency, Byron Jackson pumps have been adopted by many refineries.
Throughout the oil industry, the use of Byron Jackson equipment is regarded as insurance against interrupted operation.
Back of every Byron Jackson pump is more than fifty years of experience in building special equipment for special service.
SINCE 1872
BYRON JACKSON PUMP MANUFACTURING CO.
FACTORIES: BERKELEY, LOS ANGELES, VISALIA
Branches: San Francisco, Portland, Salt Lake, Dallas, Phoenix
BYRON JACKSON
CENTRIFUGAL PUMPS FOR EVERY SERVICE

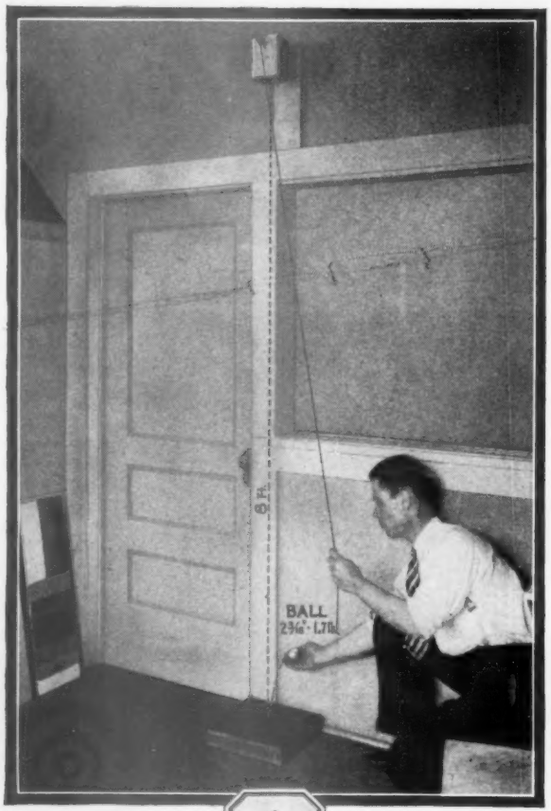
BITURINE enamel

Is applied~ over an unusually adhesive PRIMER as these tests reveal~



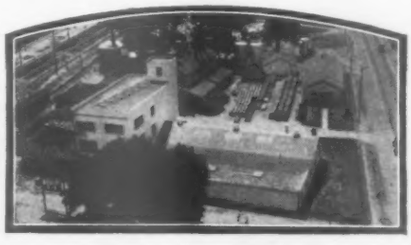
The plate above shows the result of dropping a 2 3/16" diameter steel ball, weighing 1.7 pounds, upon ordinary coating from a height of eight feet. Note how the coating has cracked, finally chipping off when again struck on the under side, leaving the surface of the metal exposed.

Above is the plate coated with Biturine Enamel and Biturine Primer after the test. Note absence of cracked surfaces; even when this plate was turned over and again struck with the steel ball, the primer adhered tightly to the metal. No bare surfaces were left exposed.



A pipe line coating is protective only as long as its primer binds it tenaciously to the surface. If the priming coat scales off, the enamel coating, of course, comes off with it, leaving the line exposed to destructive corrosion. Biturine Enamel, in addition to being a heavy, quick-setting bituminous coating itself, is applied hot over an adhesive primer that adds years of service to the life of ordinary pipe line coatings.

Following the method used by the U. S. Navy for testing bituminous coatings, samples of coatings, including Biturine, were tested recently in our laboratory. The result showed that Biturine adhered tightly to the metal, (see illustration of test above)



View of Tulsa Branch Factory where Biturine Enamel is made.

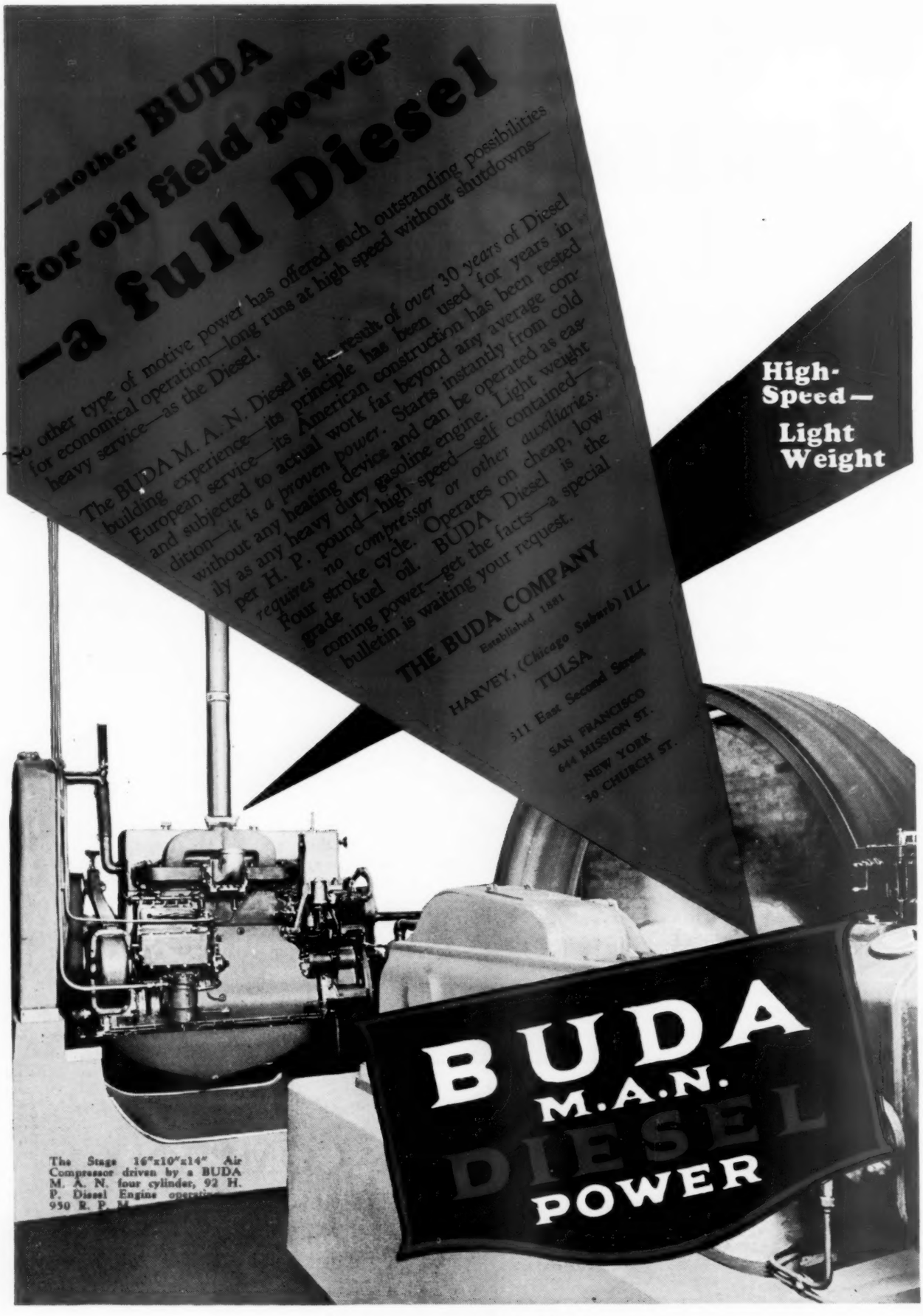
and that it passed the test with a considerable margin of strength and adhesiveness above that required by the Navy for its bituminous coatings. Biturine Enamel can be broken on occasion, but *not* at junction of primer and enamel; primer adheres tightly to metal and bonds the enamel.

Biturine Enamel permanently protects against corrosion. It is waterproof, and unaffected by acids, soil alkalis and electrolysis. On thousands of miles of pipe Biturine has been used successfully to eliminate corrosion. In use over sixteen years by leading pipe line operators.

HILL, HUBBELL & COMPANY

Manufacturers of
Highest Grade Oil Industry Paints and Pipe Line Coatings
Factories: SAN FRANCISCO and TULSA
Offices:

SAN FRANCISCO — LOS ANGELES — PORTLAND — SEATTLE
TULSA — HOUSTON — NEW YORK — BALTIMORE


—another BUDA
for oil field power
—a full Diesel
No other type of motive power has offered such outstanding possibilities for economical operation—long runs at high speed without shutdowns—heavy service—as the Diesel.
The BUDA M. A. N. Diesel is the result of over 30 years of Diesel building experience—its principle has been used for years in European service—its American construction has been tested and subjected to actual work far beyond any average condition—it is a proven power. Starts instantly from cold without any heating device and can be operated as easily as any heavy duty gasoline engine. Light weight per H. P. pound—high speed—self contained—requires no compressor or other auxiliaries. Four stroke cycle. Operates on cheap, low grade fuel oil. BUDA Diesel is the coming power—get the facts—a special bulletin is waiting your request.
THE BUDA COMPANY
Established 1881
HARVEY, (Chicago Suburb) ILL.
TULSA
311 East Second Street
SAN FRANCISCO
644 MISSION ST.
NEW YORK
30 CHURCH ST.
High-Speed—
Light Weight
BUDA
M.A.N.
DIESEL
POWER
The Stage 16"x10"x14" Air Compressor driven by a BUDA M. A. N. four cylinder, 92 H. P. Diesel Engine operating at 950 R. P. M.

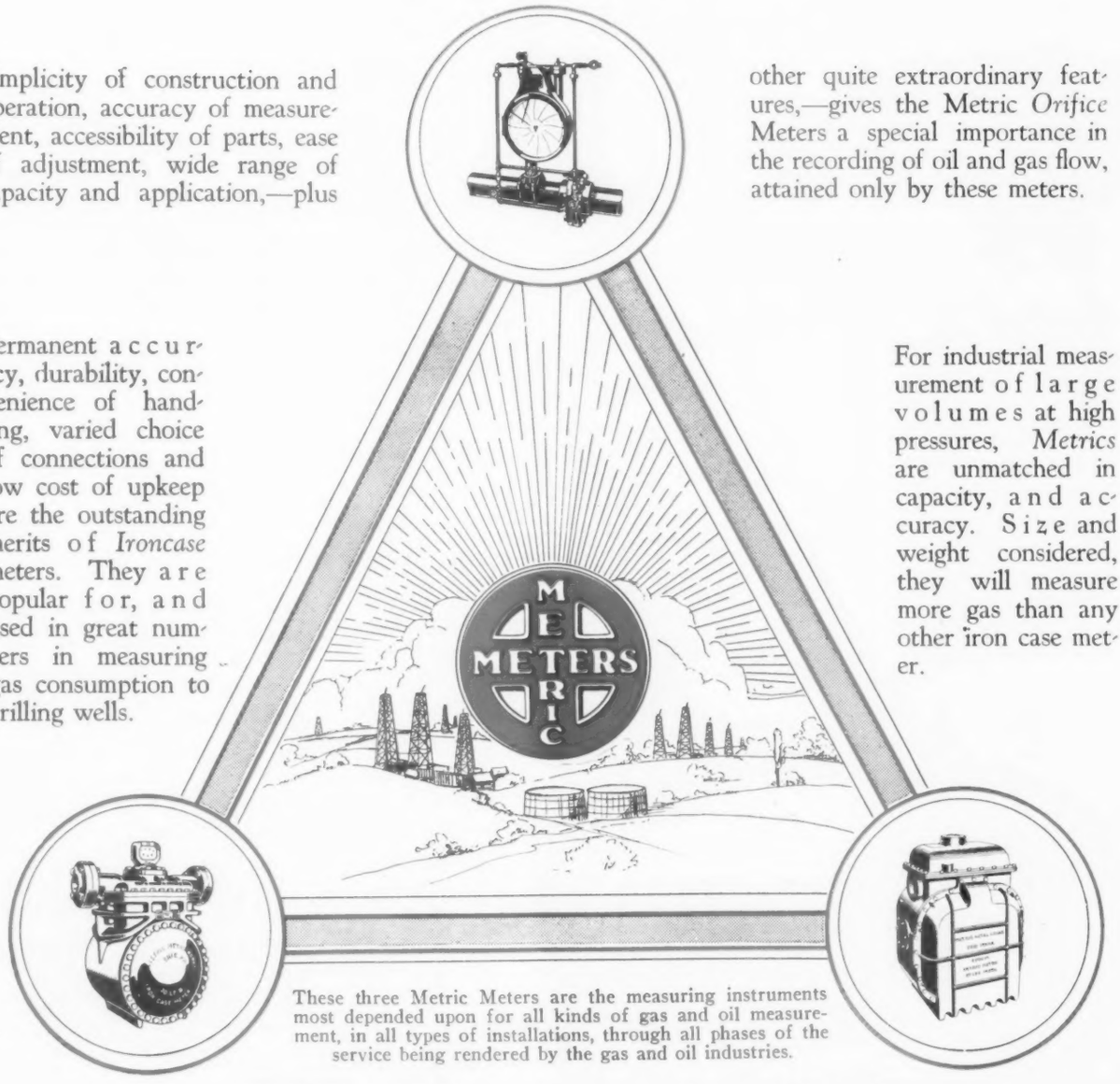
The Triumvirate of ACCURACY *in* MEASUREMENT

Orifice

Simplicity of construction and operation, accuracy of measurement, accessibility of parts, ease of adjustment, wide range of capacity and application,—plus other quite extraordinary features,—gives the Metric *Orifice* Meters a special importance in the recording of oil and gas flow, attained only by these meters.

Permanent accuracy, durability, convenience of handling, varied choice of connections and low cost of upkeep are the outstanding merits of *Ironcase* meters. They are popular for, and used in great numbers in measuring gas consumption to drilling wells.

For industrial measurement of large volumes at high pressures, *Metrics* are unmatched in capacity, and accuracy. Size and weight considered, they will measure more gas than any other iron case meter.



These three Metric Meters are the measuring instruments most depended upon for all kinds of gas and oil measurement, in all types of installations, through all phases of the service being rendered by the gas and oil industries.

WESTCOTT & GREIS, Inc.—Sales Service—Dallas—Tulsa—Los Angeles

IRONCASE

METRIC METAL WORKS
of the AMERICAN METER CO., Inc.
ERIE PENNSYLVANIA

METRIC

A "Deep Hole" Swivel

by LUCEY

THE Lucey Manufacturing Corporation of Tennessee announces its type E-6,000 "Deep Hole" Swivel for deep well drilling. This swivel is the result of experience gained during more than a quarter century in manufacturing high grade oil well drilling equipment. A few of its outstanding features are:

The vital part of any swivel is its bearings. On this swivel are used two extra heavy Timken Tapered Roller Bearings and one American heavy duty roller bearing. With the use of these three sets of bearings, the rotating parts of the swivel are kept in perfect alignment; side thrusts on the packing glands are eliminated and these glands are required to perform one function only, that is, pack off the grease and fluid.

Means are provided for engaging pull down ropes in order to exert added pressure to drill stem when drilling through hard formations at shallow depths and snubbing drill stem when drilling in high gas pressures. This pull down feature is made possible by the upper Timken thrust bearing. The arrangement of this bearing is an exclusive feature and is covered by Lucey Patents.

The angle of the goose-neck is such as to allow a natural bend of the long lengths of rotary hose which are in use today.

Short wash pipe easily replaced.

Bail stop cast integral with swivel body.

High pressure grease lubrication.

All adjustments easily made from the outside.

All connections made in accordance with A. P. I. specifications.

Write or call upon the nearest Lucey office or distributor for complete specifications on this swivel.

LUCEY PRODUCTS CORPORATION

NEW YORK
3505 Woolworth Bldg.
LONDON
54 Old Broad St., E.C., 2
PARIS
94 Rue St. Lazare

TULSA
224 E. Brady St.
HOUSTON
1614 Moffit St.
HEALDTON

LOS ANGELES
5043 Santa Fe Ave.
SHREVEPORT
143 Beach St.
DUNCAN

Distributors: HOUSTON—T. T. Word Supply Co.
FT. WORTH and WINK—Hercules Supply Co.
WICHITA FALLS—Bradford Supply Co.
TULSA—International Supply Co.
WICHITA—Bridgeport Machine Co.
LOS ANGELES—Oil Well Equipment Corp.
PLOESTI, ROUMANIA
SAN FERNANDO, TRINIDAD, B. W. I.

LUCEY LUCEY LUCEY LUCEY LUCEY LUCEY LUCEY LUCEY LUCEY LUCEY

Make Sure That a Drop Will Not Prove DISASTROUS

A GUIBERSON Tubing Catcher is complete assurance that the tubing will not suffer damage in case of a drop. The GUIBERSON can be depended upon to stop the fall within 3 inches.

Dovetail tracks keep slips in alignment. A strong spring insures operation without the aid of fluid in the hole. A heavy striker weight tends to overcome the resistance of sand or paraffine. These three features—necessary to certain operation—are exclusive with the GUIBERSON.

It's good business to insure the safety of every string of tubing with a GUIBERSON Catcher.

"Better Be Safe Than Sorry"

The GUIBERSON CORPORATION
Box 1106, Dallas, Texas
California Branch: 1506 Santa Fe Ave., Los Angeles
TULSA: 402 W. First St.
PONCA CITY: 321 S. Osage St.
NEWARK, O.: 506 Trust Bldg.

BETTER BE SAFE THAN SORRY

ALL COMMUNICATIONS SHOULD BE ADDRESSED TO THE COMPANY

Richfield Oil Company of California

GENERAL OFFICE: ELEVENTH FLOOR BARTLETT BUILDING
SEVENTH AND SPRING STREETS

ALL QUOTATIONS SUBJECT TO CHANGE WITHOUT NOTICE

Los Angeles

Long Beach, Calif.
June 13, 1928.

← This is the letter

H. C. Smith, President,
H. C. Smith Mfg. Co. Inc.,
Whittier, California.

Dear Sir:

I am very glad to write you concerning the remarkable results obtained from your coring equipment, especially Type "C". We are running twenty-four strings of tools at our Long Beach property and have obtained 100 % satisfaction in core recovery from your Type "C" bits.

The formation encountered in this field is very hard, and the results obtained from use of your coring equipment have been and still are most satisfactory.

Very truly yours,

Paul McKeon
General Superintendent,
RICHFIELD OIL CO. OF CALIF.

PM:FE

Proof positive!

And this is the Type "C" Bit ↙

Paul McKeon, General Superintendent of the Richfield Oil Company, is too well-known in oil circles to require further introduction. He's an outspoken man, is Mr. McKeon, and his opinon carries weight wherever oil men foregather.

Read what he says of the H. C. Smith Type "C" Core Bit in his letter above. "100% Satisfaction" is a strong statement, but Mr. McKeon means what he says. And he ought to know!

Mr. McKeon's letter is an index of the confidence large operators everywhere place in H. C. Smith Coring Equipment. Want the whole story? Write!

H. C. SMITH MANUFACTURING CO., INC.
WHITTIER, CALIFORNIA

Branch Offices and Warehouses:
TAFT, CALIF. BAKERSFIELD, CALIF. VENTURA, CALIF.
OIL WELL SUPPLY CO.
Exclusive Distributors for Smith Coring Equipment
All Over the World

H. C. SMITH type C CORING OUTFIT

Say you saw it in The OIL WEEKLY

"Camel Hair" Belting

WHEN next you use some small child as an excuse to attend a circus, note that the acrobats perform over nets of great resiliency. A material with less "give" would fail to stop a falling body, or would in any event injure the person falling.

Thus, for drilling and pumping operations involving shocks and strains from sudden starts and stops and uneven loads, a belt with the right degree of resiliency not only lasts longer, but adds greatly to the life of equipment.

The genuine animal hair woven generously into "Camel Hair" Belting gives it a quality of resiliency not approached in effectiveness by any other known means of transmitting power.

The belting lasts beyond all expectations and the cushioning effect is invaluable in prolonging the usefulness of equipment

CAMEL HAIR BELTING
REG. U.S. PAT. OFF.

FRICK REID

SUPPLY CORPORATION

STORES EVERYWHERE

Tulsa, Okla. Pittsburgh, Pa.

Alexson Machine Co.
Sucker Rods, Pull Rods, Plunger Working Barrels (Pumps) etc.

Beaumont Iron Works Company
Dreadnaught Rotary Equipment Water-Cooled Drawworks, Pumping Hoists, Traveling Blocks, etc.

Donovan Boiler Works
Oil Country Boilers and Tanks.

Frick-Reid Service Belting
Rubber Covered and Friction Surface.

National Transit Pump and Machine Co.
Power and Steam Pumps.

J. P. Ratigan
Grips, Clamps, Beam Hangers.

Joseph Reid Gas Engine Company
Gas and Oil Engines, two and four-cycle, Band Wheel and Direct Drive Pumping Powers.

Whitlock Cordage Co.
Manila Cordage, including Frick-Reid Manila Bull Ropes—same quality for ten years.

Lapweld and Seamless Tubular Goods

Walworth Company
Valves, Fittings and Tools for Steam, Water, Gas, Oil and Air.

Rossendale-Reddaway Company
"Camel Hair" Beltings, Belt Clamps.

Engineering Crews
for the installation of Pumping Powers and related equipment.

Goodall Semi-Metallic
ROTARY HOSE · MANIFOLD HOSE

with Boss Duplex
COUPLINGS

Amazingly Wear-Proof

"GOODALL SEMI-METALLIC" HOSE is wear proof to an amazing degree. A length of G. S. M. Rotary Hose was recently examined after more than a year of service. The hose was in perfect condition with no wear apparent on the inner tube, although the ¼" thick steel nipple was almost worn away by the sand and slush mud.

The "G. S. M." Flexible ball-joint steel armor gives strength to withstand high pumping pressures, and protects against external wear and damage.

For satisfactory and truly economical service, use "G. S. M." Rotary Hose, Manifold Hose, extra heavy "G. S. M." Combination Rotary and Cementing Hose, also Steam and Water Hose. Specify "BOSS" DUPLEX Couplings for extra safety and uninterrupted service.

"If CONTINENTAL Sells It, There Is No Better"

THE CONTINENTAL SUPPLY COMPANY

General Offices: St. Louis

Export Office: 74 Trinity Court, New York
London Office: 316-317 Dashwood House, Old Broad St., E. C. 2
The Continental Supply Company, Ltd., 411 Lancaster Bldg., Calgary, Alberta, Canada

CONTINENTAL

Say you saw it in The OIL WEEKLY

INDEX OF ADVERTISERS

Acme Fishing Tool Company .....
J. S. Abercrombie Company .....
Ajax Iron Works .....
Alco Oil Tool Company .....
Allis-Chalmers Manufacturing Company
Allsteel Products Manufacturing Co....
Aluminum Company of America 83
American Association of Petroleum Geologists .....
American Cable Company 11
American Iron & Machine Works ....
American Manufacturing Company ....
American National Brokerage Company
American Roller Bearing Company ....
American Seamless Tube Corp. .....
American Schaeffer & Budenberg Corporation .....
American Telephone & Telegraph Co...
American Well Works 80
Andrews Steel Company 93
Arbon, Paul & Co. .....
Ash Grove Lime & Portland Cement Company .....
Askania-Werke, A. G. .....
Athey Truss Wheel Company .....
Axelson Machine Company 10
Ayer & Lord Tie Company 84

B. & A. Specialty Company .....
Baash-Ross Tool Company .....
Baird Tool Works, Inc. .....
Baker Casing Shoe Company .....
Barber-Greene Company .....
William S. Barnickel & Company ... 88
Barnsley, R. O. .....
Bartlett-Hayward Company 95
Bartlesville Supply Company .....
Beebe Brothers 95
Bessemer Gas Engine Company .....
Bethlehem Steel Company .....
Billings & Spencer Company .....
Bovaird Supply Company .....
Boykin Machinery & Supply Company. 78
Broderick & Bascom Rope Company ..
Buckeye Traction Ditcher Company ...
Buda Company 14
Buffalo Bolt Company .....
Burns Tool Company .....
Butler Manufacturing Company .....
A. M. Byers Company 79
Byron Jackson Pump Company 12

Cameron Iron Works .....Second cover
Phillip Carey Company .....
Central Texas Land & Development Company 88
Chain Belt Company .....
Chamber of Commerce, Houston .....
Chicago Bridge & Iron Works .....
Chicago Pneumatic Tool Company ....
Chisholm-Moore Manufacturing Company .....
Clark Brothers Company 49
Climax Engineering Company .....
Columbia Nut & Bolt Company .....
Columbian Steel Tank Company .....
Continental Supply Company 20
Cook Paint & Varnish Company .....
Fred E. Cooper .....
Crescent Belt Fastner Company .....
Crucible Steel Company of America...
Cyclone Fence Company 95

D. & B. Pump & Supply Company ... 9
D. & M. Machine Works .....
Darling Valve & Manufacturing Co.... 22
E. M. Dart Manufacturing Company.. 72
Diamond Drill Carbon Company 92
Dunn Manufacturing Company .....

Economy Pump & Oil Tool Company..
E. H. Edwards Manufacturing Company
Electric Controller Manufacturing Company 63
Edwards Wire Rope Company .....
Elliott Core Drilling Co. .....
Emsco Derrick & Equipment Company

Fearis Separator Company 62
Fenwick-Reddaway Manufacturing Co.
Fort Worth Laboratories 88
Franklin Valveless Engine Company.. 61
Frick-Reid Supply Corporation 19

Gardner-Denver Company .....
Gaso Pump & Burner Manufacturing Company 3
General Electric Company .....
B. F. Goodrich Rubber Company .....
H. P. Gott Manufacturing Company... 92
Grant Oil Tool Company .....
Gray Tool Company 69
Guiberson Corporation 17
Gulf Publishing Company 89
Gulf Refining Company 98
Gulf States Utilities Company 47

Halliburton Oil Well Cementing Co....
Erle P. Halliburton Company .....Fourth Cover
Hardway & Cathey 88
Haynes Stellite Company .....
Harrisburg Pipe & Pipe Bending Company .....Third Cover
Harrisburg Pipe & Pipe Bending Company of Texas .....
Heppenstall Forge & Knife Company 97
Hercules Motors Corporation .....
Hercules Supply Company .....
Hercules Tool Company .....
Heydrick Mapping Company 88
Hill, Hubbell & Company 13
Hilton Hotels .....
Hinderliter Tool Company .....
Hirsch & Brown 88
Hobbs Manufacturing Company .....
Hopkins, Edwin B. .....
Charles N. Hough Manufacturing Company 97
Houston Engineers .....
Hughes Tool Company .....Front Cover
Humble Oil & Refining Company.....
Hunter-Walker Company 78
Hyatt Roller Bearing Company .....

Independent-Eastern Torpedo Company
Ingersoll-Rand Company .....
International Cement Corporation.....
International Derrick & Equipment Company .....
International Compositions Company...
International Petroleum Exposition....
International Supply Company .....

Jarecki Manufacturing Company .....
Jensen Brothers Manufacturing Company 72
S. M. Jones Company 80
Jones Oil Well Reamer Company.....

Kansas City Hay Press Company 86
Kennedye Plumb Corporation 96
Kerotest Manufacturing Company .....
Keystone Pipe & Supply Company.... 92

Landis Machine Company .....
Larkin & Company .....
Layne & Bowler Company .....
LeBus Rotary Tool Works .....
Linde Air Products Company .....
Link-Belt Company 8
Lucey Products Corporation 16
Ludlow Valve Manufacturing Company 76

McCollum Exploration Company 82
Maintenance Engineering Corporation. 88
Magnolia Petroleum Corporation .....
Maloney Tank Manufacturing Co..... 81
Manzel Brothers Company .....
Martin-Loomis Corporation 75
Martin Wagon Company .....
Phillip Maverick 88
Mead Morrison Company .....
J. C. Melcher .....
[illegible] Works 15
[illegible]er Comb'nation Bailer & Pump Company .....
Robert J. Miller Company 82
Mission Sales Company .....
Lee C. Moore & Company .....Insert

National Petroleum Engineering Co....
[illegible]nal Supply Companies 4
National Tube Company .....
Neil House .....
Norris Brothers .....
Northrup Equipment Company .....
Norvell-Wilder Hardware Company....
R. D. Nuttall Company .....
Nye Tool & Machine Works 7

O'Brien Steel Construction Company..
Oil City Iron Works .....
Oil Country Specialties Company.....
Oil Well Supply Company 24
Oxweld Acetylene Company .....

Parkersburg Rig & Reel Company.....
Patterson-Ballagh Corporation 53
Pattin Bros. Company .....
Pecos Valley Power & Light Company .....
Peden Iron & Steel Company 86
Penberthy Injector Company .....
Petroleum Engineering University ....
Petroleum Rectifying Company 65
Pittsburgh Equitable Meter Company.. 5
Pittsburgh Steel Products Company ...
Polk, R. L., & Co. .....
Pratt & Whitney Company .....
Prest-O-Lite Company 87

Quinn, F. D. .....

Reading Iron Company .....
Reed Roller Bit Company .....
Regan Forge & Engineering Company
Joseph Reid Gas Engine Company.... 57
Republic Supply Company 71
Republic Iron & Steel Company .....
R. F. Electrical Company .....
Rhode Island Fittings Company .....
Rollway Bearing Company .....
Rotary Supply Company .....

Safety Pulling Machine Company .....
J. E. Shaffer Company .....
Shaffer Specialty Company .....
Shaffer Tool Works .....
Sheffield Steel Corporation .....
Sinclair Refining Company .....
A. O. Smith Corporation 45
Smith Separator Company 55
H. C. Smith Manufacturing Company. 18
Howard Smith Company .....
South Chester Tube Company .....
Southern Engine & Pump Company...
Spang & Company .....
Spang Chalfant & Company 59
Stanley Belting Corporation 95
Star Drilling Machine Company 85
Standard Seamless Tube Company ....
Jesse R. Stone 88
Sullivan Machinery Company .....

Templeton, Kenley & Company .....
Texas Creosoting Company .....
Texas Cyclone Fence Company 95
The Texas Company .....
Texas Power & Light Company .....
Timken Roller Bearing Company .....
Texas Sand & Gravel Company 88
Titusville Iron Works .....
Edgar Tobin Aerial Surveys 76
Traction Machine Company .....
Trimont Manufacturing Company .....
Trumble Gas Trap Company .....
Tulsa Pump Company .....
Twin Disc Clutch Company .....
Tyler Tube & Pipe Company 93

Union Manufacturing Company .....
United Iron Works .....
United States Torpedo Company .....
U. S. Tool Company .....

The Vez Company .....

Waukesha Motor Company 90
C. W. Webster .....
John F. Weinzierl 88
Westinghouse Electric & Manufacturing Company 67
Westcott & Greis .....
Western Metal Manufacturing Co..... 84
West Texas Utilities Company .....
Wickwire-Spencer Steel Company 93
Wico Electric Company .....
J. H. Williams & Company .....
Williamsport Wire Rope Company ...
Wilson Oil Tools Corporation 6
Wilson-Snyder Manufacturing Company
W-K-M Company 77
T. T. Word Supply Company .....

Yale & Towne Manufacturing Company

Zero Hour Torpedo Company .....

The Oil Man's Choice

Darling Gate Valves have given faithful service in the oil fields for years—in production, main line and refinery service. Their long wearing qualities make them attractive to the men who buy on the basis of cost per year instead of cost per valve.

Men who use Darling Valves say that their efficiency reduces losses in production to a minimum. They seldom need replacement—they last for years. Back of this superior performance are the years of skillful engineering—of untiring experimenting—and of exacting workmanship with the best materials.

These well known Darling qualities stand out uniformly because Darling tests every valve at its rated test pressure and hold under this pressure until inspection is completed. Others are realizing a big saving by using the right kind of valve—you can do it, too.

Let us send you diagram showing details of construction. Sent upon request together with Catalogue.

DARLING VALVE & MFG. CO.
WILLIAMSPORT, PA.

New York Chicago Oklahoma City Houston

Mid-Continent Distributors

Frick-Reid Supply Corp. Atlas Supply Co.
International Supply Co. Petroleum Supply Co.

California Distributor
Petroleum Equipment Company, Los Angeles

DARLING
GATE VALVES

TRADE DARLING MARK

The old sword makers of Damascus indicated their pride of workmanship by the individual insignia of the blade maker. Stradivarius, Rembrandt—all the old masters of brush and craft registered an identification of their efforts.

So today does the Darling Valve & Manufacturing Company establish its identity, that those who would buy its products may be assured.

All Darling Valves bear the name Darling, the type of valve and rated pressure irremovably embossed upon the body of the valve. Be sure and look for the name before valves are installed as it is the easiest and surest means of identification.

AUG 13 1928

© C1 B 15274

Volume 50, No. 8 *August 10, 1928*

The OIL WEEKLY

Edited Weekly at Houston, Texas SPENCER W. ROBINSON, *Editor*

TABLE OF CONTENTS

Features

GASOLINE DEMAND INSURES FIRM MARKET TO CONTINUE 25
By Kent Ridley
A BOTTOM OF THE HOLE STUDY OF THE AIR LIFT 27
By Harry Pennington
LONG BEACH RE-DEVELOPMENT SETS NEW RECORDS 30
By Brad Mills
SECOND EDWARDS LIME FIELD IN TEXAS 34
By Richard A. Jones
GREATER SEMINOLE PRODUCTION SUBSTANTIALLY UP 37
By Wallace Davis
RUSH ON FOR NEW DEEP ZONE AT SANTA FE SPRINGS 39
By Brad Mills
COMMISSION ORDER LIMITS OUTPUT OF CHALK-ROBERTS FIELD 41
By H. H. King
WINKLER COMPLETIONS ADD 190,000 BARRELS DURING WEEK 43
By H. H. King
DEEP WELL AT JENNINGS HOLDING ORIGINAL FLOW 48
By Jack Logan
WATER COLUMN REPLACES RODS IN PUMPING EXPERIMENT 51
THE GAME'S GREATEST UMPIRE 54

Departments

UNITED STATES PRODUCTION— A. P. I. FIGURES 58
COMPLETIONS FOR THE PAST WEEK IN ALL U. S. FIELDS 68
PERMITS GRANTED FOR NEW WELLS DURING THE PAST WEEK 60
WILDCAT DRILLING REPORTS FROM ALL IMPORTANT AREAS 74
NEW EQUIPMENT, CATALOGS, BULLETINS AND BOOKS 91
SQUEAKS FROM THE BULL WHEEL 96
CRUDE OIL PRICE QUOTATIONS 64
MOUNTAIN STATES DEVELOPMENT NOTES 50
WEST TEXAS PRODUCTION DETAILS 56

Published Weekly By GULF PUBLISHING COMPANY
Copyrighted, 1928

R. L. DUDLEY, *President* — A. L. BURNS, *General Manager* — SPENCER W. ROBINSON, *Editorial Director* — J. KENT RIDLEY, *Managing Editor*

Office of Publication: 3301 Buffalo Drive, Houston, Texas

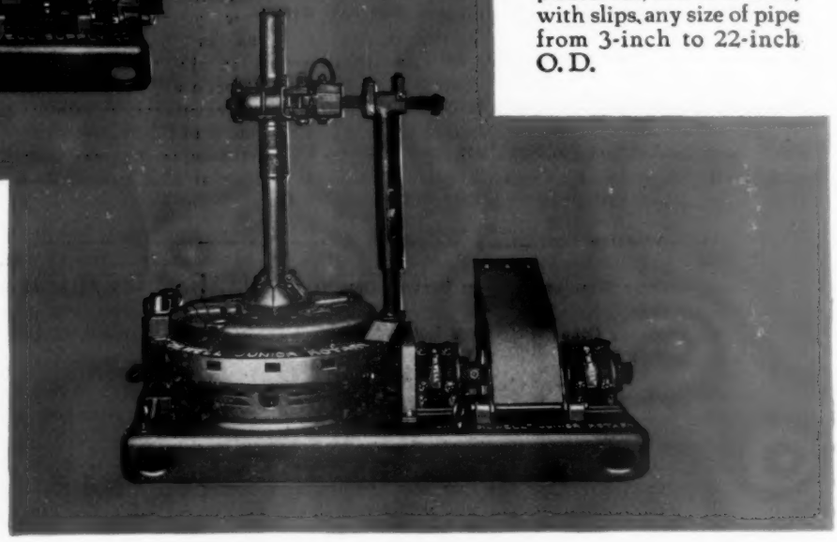
NEW YORK: Rooms 408-409, 250 Park Avenue, R. P. Swinsky, Manager. PITTSBURGH: 510 Park Bldg., W. W. Pigue, Manager. CHICAGO: Room 520, 624 S. Michigan Ave., O. R. Waller, Manager. LOS ANGELES: 416-417 Haas Bldg., Wm. V. Gross, Manager. TULSA: 215-218 Atco Bldg., J. F. Carter, Jr., Manager. FORT WORTH: 203 W. T. Waggoner Bldg., H. H. King, Manager. Issued Friday of each week. Single copies 10 cents. Subscription price, Domestic $1.00 a year, Foreign $2.00 a year. Subscription restricted to those engaged in the producing and pipe line branches of the oil business or the manufacture and distribution of oil field supplies. Advertising rates on application.

"OILWELL" MAKE-AND-BREAK ROTARIES

Drill pipe, tool joints and casing can be screwed up (as well as unscrewed) and better joints made with any "OILWELL" Make-and-Break Rotary than by any other method, and with no damage to the threads. The Rotary does it all.

"OILWELL" *26-Inch Imperial*

Constructed so as to permit a 30-inch fish tail bit to be lowered through or pulled out, and to handle, with slips, any size of pipe from 3-inch to 22-inch O. D.



"OILWELL" *20-Inch Imperial*

Constructed so as to permit a 20-inch fish tail bit or a 15½-inch rock bit to be lowered through or pulled out, and to handle, with slips, any size of pipe up to and including 13⅜-inch.

The 20-inch Imperial-California Type is of the same construction as the 20-inch Imperial except the slips, split spider and drill stem bushing. These parts are designed for the California fields or fields where 6-inch grief stems are used extensively. This rotary will handle, with slips, any size of pipe up to and including 13⅜ inch.

"OILWELL" *17-Inch Junior*

Constructed so as to permit a 17-inch fish tail bit or a 15½-inch rock bit to be lowered through or pulled out, and to handle, with slips, any size of pipe up to and including 13⅜-inch.

"OILWELL" ESTD. 1862. TRADE MARK. (REGISTERED)

For further information inquire at any of our 100 Branches

OIL WELL SUPPLY CO.

NEW YORK—LOS ANGELES—PITTSBURGH, U.S.A.—SAN FRANCISCO—TAMPICO—LONDON

WORLD'S OLDEST AND LARGEST MANUFACTURERS OF OIL FIELD EQUIPMENT

Gasoline Demand Insures Firm Market to Continue

Kerosene also is making profit for refiners while fuel oil still is slow mover; plant operators profit from condition voiding premiums

By KENT RIDLEY

EXCEPT for a more brisk demand for natural gasoline and a consequent rise in the price of that commodity, the market situation is the same as has been for several weeks—gasoline and kerosene in good demand with prices advancing, and fuel oil still moving slowly. The crude advance of last week is calculated to help the latter commodity to an extent as it makes cracking more attractive. Tank wagon markets have been advanced generally in recent weeks, but not in proportion to the advance of gasoline prices as the refineries. The demand for natural gasoline probably is principally due to need for blending low gravity gasoline made from the cheap West Texas crudes which yield a low gravity product which is desirable because of its anti-knock properties.

American Petroleum Institute estimates show a gain of 17,900 barrels for the week, the daily average in Texas being up 15,000 barrels while Oklahoma made the most substantial gain in some weeks, up 2350 barrels. Rocky Mountain area was up 1500 barrels but still below its average of recent weeks.

Price Revisions

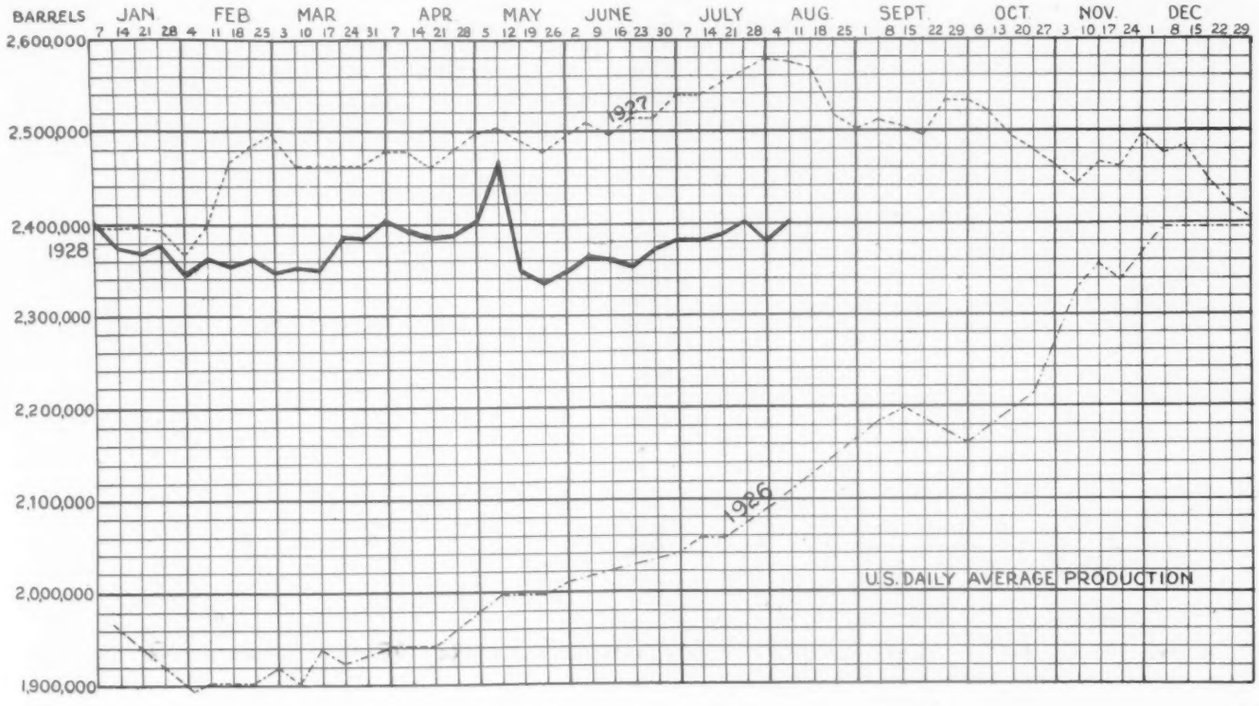
Price changes during the week were of minor importance. Magnolia Petroleum Company changed its figures on low gravities in the Mid-Continent and all buyers altered schedules in North Louisiana and Arkansas. Details of these changes will be found on page 58 of this issue.

Gasoline prices in the Mid-Continent refining centers are steadily advancing to higher levels, with the manufacturers in control of the market and a price of 10 cents per gallon for U. S. Motor gasoline is now practically assured. Kerosene ranks as the second most active product in the refined market, and prices have been working in an upward trend in recent weeks while a slight improvement in the fuel oil situation was reported over the past week. Mid-Continent plant owners have booked sufficient gasoline business ahead to assure continued high prices and most of the plants are now behind on their shipments. Stocks have been lowered to a comfortable level, thus leaving the refiners with a bright outlook over the balance of the summer.

North Texas refiners are enjoying an unusually prosperous summer season with an adequate supply of high gravity crude available at a maximum premium of 10 cents per barrel above the posted price and pipe line delivery charge.

In previous years bonuses for crude have followed in the wake of a favorable refining period but the crude marketing plan made available to North Texas plants since last March by the Pure Oil Pipe Line Company of Texas, and by The Texas Company within the past two months, has eliminated competitive bidding with premiums for crude. The latter two majors make a marketing charge of 10 cents per barrel for all crude delivered to the inde-

UNITED STATES CRUDE PRODUCTION TREND



pendent plants. However, the North Texas crude demand is not keeping pace with the crude offers by the above two marketing agencies, and Pure Oil Pipe Line Company has been forced to provide more crude storage facilities in the district having purchased two 55,000 barrel tanks from Humble Oil & Refining Company in the Burkburnett district and placed an order for a new fifty-five to be erected on its Wichita Falls tank farm.

U. S. Motor gasoline was firm at 9¾ cents per gallon early this week in the North Texas refining district with some plants holding out for a dime. This is the highest price since the first week in January of last year. Kerosene is proving to be a money product for the North Texas plant owners, with prices now averaging 5¾ cents per gallon. North Texas fuel oil partially recovered from its drop to 45 cents per barrel and early this week buying had been sufficient to boost the price about a nickel per barrel. Cheap priced fuel oil in the Panhandle and West Texas has affected the North Texas markets. A few spot sales of West Texas fuel oil have been made lately at a record price of 25 cents per barrel, owing to plants having filled all storage. A movement is on foot to build earthen storage to accumulate this fuel oil and hold for better prices and the same plan may be tried in the Texas Panhandle.

Natural Gasoline Strong

Natural gasoline continued getting better all through last week in the Mid-Continent, reaching 10¼ cents for a low, and several sales were reported Saturday morning at 10½ cents flat. Prospects for still higher prices for natural gasoline look good, even though production is expected to be increased within the next month. Announcements of new plants in the Seminole territory were made last week, and facilities for increasing production of natural gasoline in that area by construction of several plants in the South Little River field are figured to be the item of this increase. Nevertheless, prices are expected to continue strong through the remainder of August, and the new production of next month will probably not alter the situation materially with the present growing demand for this product.

The big demand for natural gasoline in the Mid-Continent is reported resulting chiefly from heavy consumption of the Gulf Coast.

Any limit placed on the possible peak attained by natural gasoline prices would be somewhat far fetched, judging from the performance of the product in the past. A review of prices for several years past show the price on Grade "A" reached 22½ cents May 18, 1922. At that time U. S. Motor gasoline was selling at refineries at 18⅝ cents. During 1923 the peak price for natural gasoline was reached February 24, with 15⅛ cents, with U. S. Motor selling for 14⅞ cents. Both products took a lower trend through the year from this date. In February, 1925, natural gasoline sold at 13¼ cents and in June of that year it reached 15¾ cents, the differential at this time being wiped out as it is at present. In June, 1925, U. S. Motor was at 13⅛ cents. Early in 1927 natural gasoline in Oklahoma was at 9½ cents, but started down from that date. It reached a low in January, 1928, when Grade "C" fell to 3½ cents. In July, 1927, natural gasoline was at 4¼ cents for Grade "C". The phenomenal rise can be seen through the comparison of the January price of 3½ cents against the present 10½ cents, about 325 per cent increase in slightly more than six months.

U. S. Motor gasoline stood at 9½ cents Saturday, with prospects of continuing stronger within this month.

Kerosene was selling briskly late last week at 5⅝ to 5¾ cents. Fuel oils showed no change of mentionable value, but were generally weak.

Crude oil in the Mid-Continent territory shows fine possibilities of getting another increase within the near future. Especially is the high gravity stuff figuring to demand a raise, and below 32 gravity is expected to be favored with the next upward move of the light stuff. Magnolia Petroleum Company fell in line with other Mid-Continent buyers August 2, posting 60 cents for below 25 degrees, with a seven-cent differential for each degree up to 27 gravity, and putting 30 degree stuff at 90 cents.

Slight water showings in the St. Louis field last week has served to place further doubt on the lasting qualities of this temporarily strong area. This, with Little River figuring to have little gas pressure, makes the overproduction situation of Oklahoma look less dangerous.

No Change in California

The new deep sand in the Santa Fe Springs field has had no immediate effect on the oil market in California, but there is a cloud forming which threatens to throw the industry completely out of balance. From 30 to 60 wells will be under way within 30 days and if the new zone proves as productive as the discovery well indicates, a huge overproduction certainly will be the result. All companies—both large and small—are rushing into the field to protect their holdings. The upper sands were very productive for a short time only, and it developed that the first wells got the cream of production. With this in mind, a spirited race for the new sand is a settled fact. The larger companies are adverse to developing the deep zone, but they will join in the race as a protective measure. The discovery could not have been made in a more dangerous field.

With the completion of a 3500-barrel well in a new deep zone in the Midway field, the attention of the entire San Joaquin Valley fields has been

(Continued on page 38)

Details on Critical Fields

	Oil Wells Completed	Total Initial Production	Initial Per Well	Number Producing Wells	Daily Production Barrels	Daily Prod. Per Well	Rigs Up.	Wells Drilling
WEST TEXAS—								
Hendrick	270	1,371,065	5,078	288	174,275	*605	26	133
Church & Fields	185	202,355	1,094	184	38,545	209	1	1
Gulf-McElroy	63	54,110	859	63	14,520	230	1	1
Yates	239	1,527,690	6,392	235	64,780	*276	7	21
Totals	757	3,156,220	4,169	770	292,120	379	35	156
TEXAS PANHANDLE—								
Hutchinson County	1,111	546,780	492	980	34,635	35	4	21
Gray County	247	106,465	431	236	20,345	86	10	50
Carson County	180	59,270	329	150	6,750	45	2	8
Wheeler County	42	14,230	339	33	895	27	1	11
Totals	1,580	726,745	459	1,399	62,625	45	17	90
OKLAHOMA—								
Greater Seminole	1,352	1,654,585	1,223	1,106	240,413	217	20	155

(*) Production partially pinched.

A Bottom of the Hole Study of The Air Lift

IN TWO PARTS—PART ONE

By HARRY PENNINGTON
Mechanical Engineer

IN THE light of lifting oil with air lift, or gas, conditions as to wells differ with each field; problems of Seminole are not those of the Gulf Coast, nor are those of West Texas the same as California, but in all cases, air lift is the same wherever used, for its principles do not change.

It is quite easy and simple, looking at air lift from the surface, to run a pipe down in a well and turn high pressure air loose in it to produce oil, and so this particular method is, but we are in the production of oil for profit, which requires that initial investments be held down to the minimum as a basis for reducing operation, maintenance and fixed charges, that barrel lifting costs will be held low, and that wells themselves must not be damaged, for this last item is also chargeable to the expense of air lifting.

It is the object of this paper to point out sources of damage to wells that may occur with air, particularly in the deeper wells—not by way of attempting to condemn air, but to further the use of air because in no other known way can daily can total recoveries be made as great, and in no other way can large quantities of oil, or of a little oil and much water, be pumped at a profit. Where floating sand, or quantities of the producing sand body, require removal from the well along with oil, air lift handles the problem as in no other way.

Since we now have commercially profitable production in Texas, Louisiana and California at depths ranging lower than 5000 down to over 6000 feet, in which reciprocating pumps have not been entirely successful, either in maintenance or lifting cost, the application of air to these wells is the logical method, and it is of value to study the forces involved with the idea of so controlling them as to prevent well damage.

A few cases of disaster has served to set up distrust of air lift in deep production. In these cases, rock pressures of the wells has been the cause of loss, as I shall endeavor to point out, and the use of high pressures of air, or gas, from compressors has been the means of letting formation pressures do damage. Thus, the air lift is not a primary source of danger, but is a secondary source, and when air is applied, control of starting and operating may be such as will place a limit upon the action of formation pressure, asserting control over the latter in such way that it can do no damage.

Figure 1 is a conception of an easy explanation of the pressures of an oil reservoir tapped by a well. The static pressure level, or rock pressure level, is shown below the ground surface, and the level of oil is shown even with the pressure line, taking pressure in terms of feet of oil and not in pounds, in this illustration. The pressure line is then the rock pressure of the formation.

Elevations of sand, of fluid and of ground surface are shown to scale, and the depth of the top of sand is shown at 4200 feet. Height of fluid in the casing is 3200 feet above bottom so that rock pressure, with 0.90 specific gravity oil is 1251 pounds, for that pressure, is required to force oil up the casing a distance of 3200 feet.

By following this explanation carefully, the writer believes that the idea generally of this paper can be had.

Rock Pressure Balance

While standing dead, the pressure of 3200 feet of oil in the casing balances rock pressure, and we are now sure that if the oil in casing is removed, the rock pressure will be found at 1251 pounds.

In Figure 2, I have shown the same well with 500 feet of fluid pumped off, immediately after, with the pressure line still level. At this instant, the formation drives oil into the well under a pressure of 500 feet of oil, or 180 pounds, and so long as the working level of the oil surface is maintained at 1500 feet below ground, and well pressure does not subside, this 180 pounds, or 500 feet of fluid pressure continues to drive oil into the well and up the casing. Below the working level, the column of oil reaching to bottom, amounting to 2700 feet, serves to place its equivalent of pressure on the oil sand, balancing an equal amount of formation or rock pressure, leaving the difference of 180 pounds for forcing oil from the formation into and up the casing.

Figure 3 shows a theoretical lowering of the pressure zone around the well in

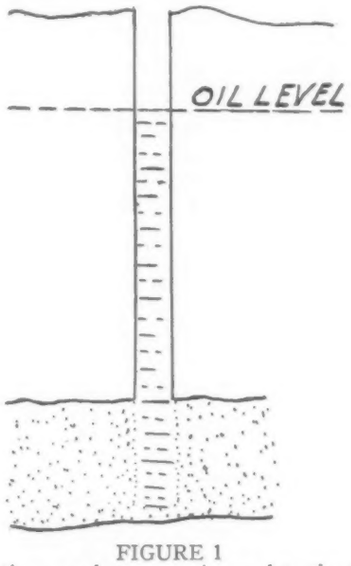


FIGURE 1
Static or rock pressure is equal to the oil level height above oil formation.

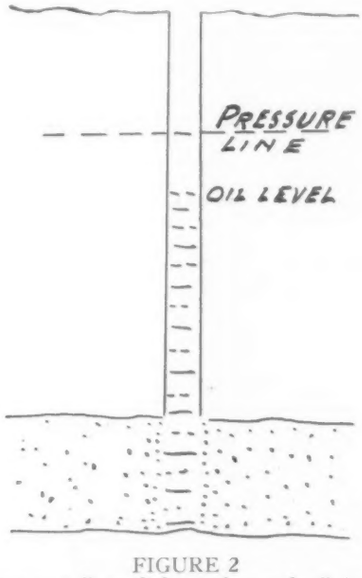


FIGURE 2
Pressure line of formation and oil level at instant of starting.

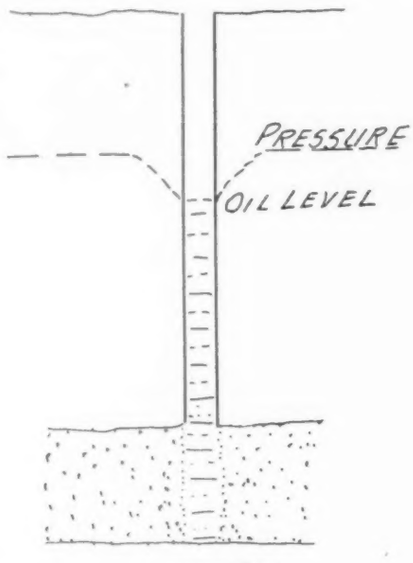


FIGURE 3
Pressure level after pumping for a time.

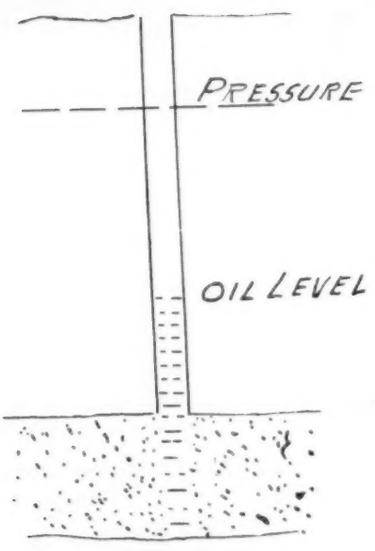


FIGURE 4
Pressure level and oil level immediately at starting, in deep pumping.

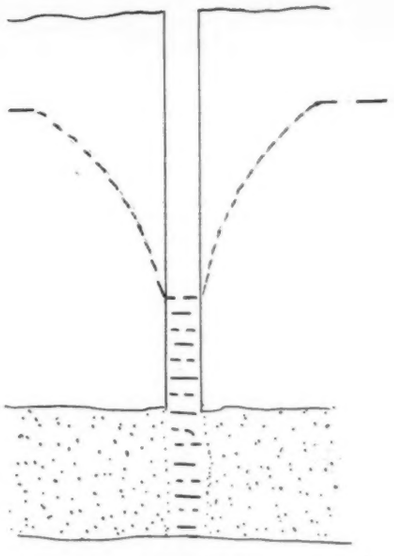


FIGURE 5
Levels of oil and formation pressure, with deep pumping.

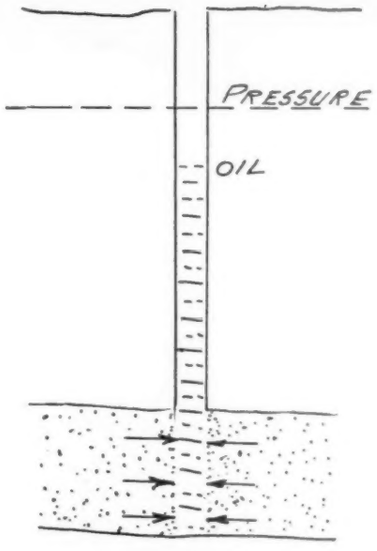


FIGURE 6
Inward pressure, against well wall, set up by starting quickly.

the sand, after the well has been pumped for a time. The contour of pressure is depressed around the well as shown. The writer has measured such depression contours in shallower wells, and the contour line is placed as shown, much along the same line that has been found to exist in the wells so measured, using adjoining wells with their static levels as a basis of measurement.

As long as pumping is continued at such rate that the working level is maintained at 1500 feet, and as long as well pressure remains constant, the contour shown will be maintained.

Figure 4 shows a further depression at the instant of starting of the working surface level of oil, depressed by additional pumpage, to 3000 feet. There is now 1200 feet of oil in the well below the working level, which sets up a pressure of 381 pounds to counterbalance an equal amount of formation pressure, and we now have, with the original rock pressure as a basis, 870 pounds pressure from formation to drive oil into the well and up the casing, taking this pressure reading immediately after 3000 feet of oil has been removed from the casing.

Again, after pumping a time, the contour of pressure surrounding the well zone is shown in Figure 5 where the pressure at the well face is, as before, greater than the balancing pressure of 1200 feet of oil above the sand, causing flow into the well and up to the pumping level, for it is this difference that now serves to elevate oil to the level at which the pump lowers the surface, and from the surface of oil in the well, air does the work of lifting oil to the top.

The first case, Figure 1, is the basis of computation for starting the well, and when the well was started and pumped to depress the working level 500 feet, the delivery of oil was 825 barrels per 24 hours, from which a depression factor of 1.65 resulted, or, for each foot the working level is depressed, the well delivered 1.65 barrels per 24 hours. This is a means of determining the free flowing qualities of wells, and the principles of its use were worked out by the writer some years ago and applied to wells for gauging their free flowing qualities, which is a gauge of the manner in which the well is finished, comparing one with another, and is a further gauge of the free flowing qualities of an oil sand, with different methods of well finishing. It is the one important factor in producing liquids from sands in the ground; it not only furnishes a gauge of free flowing qualities, but indicates the condition of well at all times; of the subsidence of rock pressure; a gauge of paraffin and tar accumulations obstructing free flow into the well, for when rock pressure does not subside, but production lowers, we have a differential method of gauging the well. It also sets up a gauge of accumulations of sand and silt migrating through the sand to a zone surrounding the well, creating relatively non-porous zones around the well bore, which retard flowage into the well.

Depression Factor

Every well has its depression factor—an individual factor, which may be determined as above, from its standing level, its working level and its production. The continuous recording of this factor forms an important part of field engineering. No especial testing is necessary because in the usual field operations, standing levels of oil are always measured, and in starting wells with air, the starting pressure always reveals the standing oil level in a well, while running pressures indicate the depression of level.

With the air line outlet set at 2200 feet down in the well, submerging the same 1000 feet, the starting pressure, with straight air—that is without stage starting—is 470 pounds at the outlet which equals the pressure required to deliver air from a pipe submerged 1200 feet in 0.90 specific gravity oil.

Upon pumping the working level down to 1500 feet, corresponding to a depression of 500 feet, working pressure subsides an equal amount, viz: 500 feet of oil head, which results in a reduction of starting pressure to a working pressure of 243 pounds at the air outlet. Compressor pressure is of course the outlet pressure plus line friction from compressor to outlet.

Starting this well, as above, lifting 500 feet of oil quickly, and lowering the working level quickly to a 500-foot greater depth, suddenly removes 196 pounds from the casing oil column, which in turn is removed in the same length of time, from the formation pressure at the sand face at the bottom of the well.

Since there is no obstruction in the well bore in the sand and up the casing, and since the sand itself is an obstruction to an equal flow of oil through the sand to the well, it follows that the well wall is subjected to the inward pressure set up by removing 500 feet of oil from the casing, which is represented in Figure 6, with lines drawn to scale, showing this proportion of inward pressure, at the instant the 500 feet of oil and its pressure is lifted.

To successfully withstand a suddenly applied pressure of 500 feet of oil column, inwardly to the sand wall of a well requires a hard sand rock or a support consisting of liner or strainer, because, without support, any well of the softer kind will cave under this condition.

Greater Submergence

Now, let us place the air line down to 3500 feet, submerging the outlet 2500 feet in oil, and then start the well with straight air. Starting then requires 978 pounds of air pressure, plus friction. Production became 2420 barrels, with a depression factor of 1.65, the working level reduces to a com-

puted level of 2467 feet, and the working air pressure 448 pounds at the air outlet. The working pressure was actually 467 pounds at the well, indicating that the depression factor reduced somewhat; due to friction, the compressor pressure is somewhat higher.

Allowing for friction in the well air line, it will be noted that the depression factor altered to a lower figure than formerly, which is the usual case with increasing production.

With straight air, starting at 1107 pounds, then suddenly removing sufficient fluid to lower the working pressure to 455 pounds, we now see that the well wall, at the instant of lifting to start the well, was suddenly subjected to an inward pressure from the formation of 637 pounds.

There are very few well walls that will withstand such pressure, instantly applied inwardly against the well. It is true that this pressure subsequently diffuses, in a zone surrounding the well, but nevertheless, that does not remove the fact that the well wall was subjected to such initial pressure inwardly.

The measurement of standing levels in adjoining wells indicates that pressure diffusion—or the lowering of formation pressure all around the well to the working pressure level of the well—is not accomplished instantly, but that some lapse of time is required for the effect of starting a well to be transferred to an adjoining well, particularly in the tighter formations that contain oil.

Pressure Diffusion

While the writer has measured pressures in wells under various conditions of operation, there is no known way as yet of computing the rate of pressure diffusion, nor of measuring the flow through an oil sand. But the tests as outlined were made and data gathered with the idea of ascertaining the time required for diffusion of lowered pressure in the adjoining formation after starting a well, to determine if the time is deferred sufficiently long to set up inward pressures due to formation pressure, that might cave a well wall. The result of these tests show that there is a source of danger where the formation and starting pressures are relatively high, which is in the deeper wells.

Any method of starting wells that relieves pressure from the formation instantly, or practically so, or that changes pressure from positive to negative, without a considerable lapse of time in so doing, or that is, without a gradual change, sets up hazards of well damage.

Rock pressure, found initially or at any stage of production, is determined by the standing level of fluid in the hole. That is, the rock pressure of that well. Pumping it, and producing oil and gas may have lowered the formation pressure at this well below that of the field generally, or below that of other wells, so that each well requires a measurement of its standing level to fix the conditions for operating it with air.

There are few cases in which rock pressure exceeds that of an oil column of equal well depth; the subject matter deals mainly with wells with a relatively lower rock pressure than equal to a column of the height of well depth, because air is seldom used in wells with higher static pressure.

Gulf Coast

In the deeper sands alongside of a salt dome in the Gulf Coast, the sands are unconsolidated and loose. The cap rock wells, finished in dolomitic limestone, or in gypsum, required no wall support, but all later wells, in loose sand require a support to the wall, and at the same time, the support must filter oil from the sand. The support is a strainer, the mesh of which ranges from 6-1000ths. to 20-1000ths. inch between wires or width of opening.

A 12-1000 strainer has a linear length of opening, in the wire wound type, 4½-inch size, of 150 inches per foot; including that portion of the openings directly opposite the holes, and with 60 holes per foot, the total net inlet area is 1.8 square inches per foot of length, so that with 20 feet of strainer, the total free inlet area is 36 square inches.

Twenty feet of 4½-inch strainer exposes a superficial area of 3600 square inches, against which the oil sand rests, therefore, with a porosity of 12½ per cent., which may be a little low on the Gulf Coast in the deeper fine sands down the side of a dome, the clear inlet area from the sand is 450 square inches, so that when oil and gas arrive at the strainer surface, it may travel through openings totalling 450 square inches, but, when passing through the strainer, the oil and gas are constricted to pass through only 36 square inches, which increases velocity materially.

But, as we know, the inlet area of a strainer is never totally effective, due to it being lowered into the well through slush, which is usually maintained heavy at this time, to hold the well in until strainer is set. The strainer is usually washed down, also. The strainer openings being so minute, mud clogs them, and judging from pulled strainers, the most careful clear water washing by present methods, does not suffice to clear the strainer openings and an estimate of 25 per cent. is not far from the average of what will be found.

This further reduces the clear inlet area to nine square inches for the 20 feet of strainer being considered.

Production Velocity

Now, with a production of 64 gallons per minute, or eight cubic feet, together with three and one-half million feet of gas per 24 hours, the volume of both oil and gas must pass through the strainer. Three and one-half million feet of gas per 24 hours is 2572 feet per minute, measured at atmospheric pressure, which reduces to 629 cubic feet at the bottom of the well under 602 pounds pressure, or 40.9 atmospheres, which, with a solubility factor of 30 per cent., resolves into a net volume of gas of 440 cubic feet per minute and 448 cubic feet of oil and gas.

To pass 448 cubic feet of oil and gas per minute through an area of nine square inches, requires a velocity of 102 feet per second—a velocity which is considerably higher than sandblasting work, and which cuts the strainer wire quite readily, opening them up to the passage of the body of the sand.

The foregoing covers steady production, and not production for the first few minutes of starting a well with air. During the first few minutes a well delivers far more oil than later after starting. The same instantaneous pressure acting inwardly against the strainer, appears in starting strainer wells with air as any other and although strainer wells rarely ever collapse at the strainer, the high velocities set up in starting, will cut the strainer and allow the body of sand to flow in with oil and gas, sanding up the well.

It is the free flowing portions of strainer that conduct oil from the sand into the well. Surrounded by sand of larger grain size, the smaller particles are driven through the pore spaces toward the well and will enter the strainer if the opening wires is large enough, but if not large enough, the smaller particles lodge against the openings, serving further to reduce the clear inlet area, increasing velocity and increasing the cutting effect of sand passing through other openings with oil and gas.

Arriving at the crucial point—when the well is started with straight air and 637 pounds of static pressure is removed quickly from the casing, allowing an equal amount of formation pressure to act toward forcing oil and gas through the strainer, the rush of oil is usually four to five times as much as will flow subsequently, and velocities are increased largely. After pumping for a time, formation pressure surrounding the well lowers, and at this time, velocities may be much lower, without bad effect.

Closely Spaced Wells

Where wells are closely spaced, as in the older cap rock wells of the Gulf Coast, and in later deep wells both there and on the Pacific Coast, an attempt to start a well may blow an adjoining pumping well, as illustrated in Figure 7, in which conditions as measured, of an incident of the kind are shown. Well A, which was to be started, had 2050 feet of oil in the hole with the surface 525 feet below ground, and well B, estimating from length of air line and operating pressure, had its working level depressed to 1550 feet.

It is easy to see that the low pressure area, established around well B by pumping, and production of formation gas, tends to allow pressure from well A, which is greater due to the head of oil in well A, to force oil from the bottom of A, over to B, especially since in starting, there is likelihood of increasing the pressure and oil level of A by a small amount of air entering in insufficient quantity to start A at once. The writer has had this to occur, blowing two adjoining wells simultaneously, instead of the one desired, making it necessary to start the well in stages, to reduce the working level without using high pressure.

(Continued on page 52)

Long Beach Re-Development Sets New Records

Production since 1921 has totaled 214,000 barrels per productive acre, enough to cover the entire area to a depth of 28 feet

By BRAD MILLS
Staff Representative

THE re-development of the Long Beach field again brings to the attention of the industry the most remarkable producing area in the world. Producing as high as 260,000 barrels daily during August, 1923, the field helped to throw the industry completely out of balance; but even this spectacular performance failed to disclose the true possibilities of the area. The upper zone, itself more than 2000 feet thick, produced all of the first flood of oil, leaving the then unsuspected deep zone to stage a sensational demonstration five years later.

Several fields have yielded oil from deeper sands after the upper zone had been developed, but never in the history of the industry has a major area reached such heights from new levels. The thickness of the oil zones, the small productive acreage, the yield per acre, the slow decline of the wells, the remarkable gas pressure and the recoverable oil combine to make the Long Beach field truly the most compact and consistent producer yet discovered.

Opened in 1921

The history of the Long Beach field dates back to March 21, 1921, when the Shell Company completed Alamitos 1 as the first commercial producer. The well was completed at 3114 feet and flowed 2318 barrels on the initial test. The oil was 21.9 gravity and cut only one-tenth of one per cent. The completion of Alamitos 1 was a real achievement, having been one of the few discovery wells to be finished in perfect mechanical condition. The present line of fields lying between Newport and Beverly Hills was just beginning to become a reality and the lack of drilling experience failed to hinder completion of the discovery well. The casing record included 380 feet of 15½-inch, 2727 feet of 10-inch and 3114 feet of 8¼-inch. The intermediate string was used as the final water shutoff, while the 8¼-inch was landed on bottom for the oil string. The latter was cemented through perforations at 2729 feet, giving the descovery well a mere 385 feet of producing sand. The gas pressure proved that no ordinary field had been found, though there was little thought that Signal Hill would become one of the greatest producing areas in the world. The well was located on the east side of the knob and failed to convince the skeptics that the field would extend along a narro wbelt for nearly three miles.

Many of the best leases in the field changed hands at nominal amounts long after the discovery well was drilled. Shell Company's Alamitos 1 seemed to prove the peak of Signal Hill, but the flats to the northwest looked very doubtful. One major company, and incidentally one that doesn't have an acre in the field, rounded up more than 100 acres of choice leases, but finally decided that the outlay was entirely too great for the risk involved.

Rapid Development in 1922

Development of the field was orderly for a time, but a few big gushers brought operations to a fever heat. By the middle of 1922, the industry was confronted with the realization that a stupendous townlot drilling campaign was on. The wells were coming in large and often and production was soaring steadily.

Gas blowouts took a heavy toll for two years after the field was discovered. Attempts to complete wells after the custom in other fields failed miserably. One of the largest operators tried drilling to the oil sand with rotary and completing with cable tools. Theoretically, this method was very good, but field conditions would not stand for it. The most sensational blowout was staged by Shell Company's Andrews 1, March 23, 1923, when oil was scattered over a wide area before the well was brought under control. The initial production of this wild well was conservatively estimated at 30,000 barrels, making it the largest ever completed in the field. More than 16,000 barrels was caught in improvised sumps. Careful use of rotary methods to the very bottom of the hole later brought the situation under control.

In addition to Shell Company's Andrews 1, many large wells were completed during the first two years of development. Many completions flowed at the rate of 10,000 barrels, but production fell off sharply. It was this almost sudden drop of the largest wells that prompted conservative statisticians to predict a bad future for the area. They thought the gas pressure would drop rapidly, leaving the field to follow the course set by Santa Fe Springs and other flush areas in California.

Peak in 1923

By the end of 1922, the field had been extended in all directions and production was obtained from much deeper in the Alamitos zone than in the earlier producers. Production jumped above 100,000 barrels from 148 wells, with 180 drilling wells in reserve. In spite of the large number of completions during the year, drilling wells showed a steady gain from month to month.

During 1923 the field attained new heights, reaching a peak production of about 260,000 barrels during October. The greatest number of drilling wells was recorded in July, the total number falling very sharply during August and September to bring about the October peak. It is interesting to note that peak production was obtained from only 290 producing wells. After the slump set in, a great barrage of completions did not offset the decline. Production during October was 7,580,339 barrels, or an average daily production of about 244,500 barrels. The greatest production per well per month was during June, when the daily well average was slightly less than 1000 barrels from an average of 190 wells. Drilling wells at the beginning of the year numbered 175, increased to 269 in July and fell to less than 150 by the end of the year. Producing wells increased steadily to the end of the year, totaling 370 in December. The field produced almost 69,000,000 barrels of oil during the year, setting a record which it has not equalled since. No other area, with the exception of Santa Fe Springs, had ever yielded so much oil in a single year. The production trend turned definitely downward late in the year, however, and relief from a huge overproduction seemed in sight. It developed later that predictions made at the time relative to future production were entirely wrong.

Decline During 1924

Although operators were completing wells at depths which were considered exceptional, the decline in gas pressure was felt sharply during the early part of 1924. Production at the beginning of the year was only a few thousand barrels below the peak, but a fairly steady decline brought the daily averages to around 130,000 barrels during the latter part of December. As the number of producing wells climbed, drilling wells stopped, since new locations became almost negligible. At the cose of the year, producing wells totaled 530, while the number of drilling wells had dropped to the almost unbelievable total of 24. Due to the high daily average during the first part of the year, field production was more than 60,000,000 barrels.

Los Cerritos Extension

The discovery of the Los Cerritos pool, which in reality proved to be nothing more than an extension to the main field,

View of Signal Hill, with Alamitos Heights field in the distance.

was the outstanding development of 1925-26. The graphs showing the relation between the number of drilling wells, the number of producers and the total field production are especially interesting during this period. Soon after the discovery, the number of drilling wells quickly increased from 25 to 150. Producing wells jumped from 550 to around 800 within less than a year. Field production, however, showed an increase of only a few thousand barrels. Ordinarily the almost sudden addition of more than 200 wells would have sent production soaring toward a new peak, but the new area proved the only disappointing feature of a remarkable field. At the end of 1926, the number of drilling wells had again fallen below 25 and producing wells showed a decided loss from the greatest number, falling from almost 800 to 715. Production, which had only mildly responded to the development of the Los Cerritos extension, showed a gradual decline all during 1926, despite the huge increase in the number of producing wells.

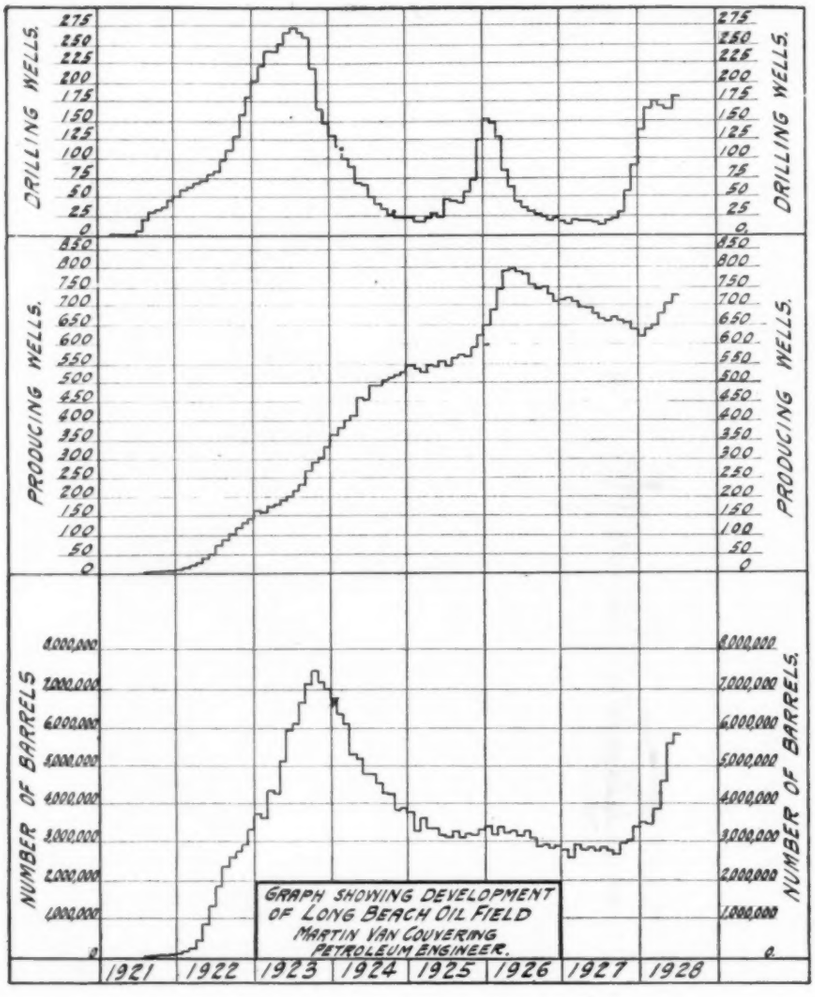
Second only to the completion of the first well in 1921, was the discovery early in 1927 of a new and deeper zone which proved almost as prolific from the beginning as the upper sands. Singularly enough, the first well drilled probably did not actually discover the sand, but for all practical purposes it shoud have full credit for the discovery. The well was drilled on what was termed an edge lease and obtained oil at an unusual depth. It has developed that the well probably was completed in the same sand which had produced for years in the heart of the field, but it convinced the company that another zone would be found, regardless of whether it had already been discovered. During the early summer months, wells were completed around 5800 feet and the scramble for the new zone was on. Every operator—large or small—marshalled his forces for the second renewal of operations since the original campaign of 1922-23. As late as July, only 15 wells were drilling. The completion late in the summer of several large wells demonstrated the possibilities of the new zone and at the end of the year 90 wells were headed for lower levels. Producing wells did not show an increase during the year, but production sharply jumped during October, November and December, even though many wells were killed to deepen. Field production jumped from 2,704,000 barrels during September to 3,360,000 barrels during December. A daily production of 150,000 barrels seemed possible.

Deep Drilling in 1928

Spurred by large wells in all parts of the field, the drilling and deepening campaign gained momentum during the first months of 1928. The number of drilled wells jumped to almost 200, with new locations keeping pace with completions. Production was slow to climb during the first three months, but the slump proved to be nothing more than a lull before a storm. Wells were gradually completed deeper in the new sand, causing a dearth of completions and an appreciable gain in the number of drilling wells. April, May and June proved to be record months, production climbing to the 200,000-barrel mark with comparative ease. The number of producing wells rose from 625 to 750 during the first six months of the year. The decline in the number of producers during the latter part of 1927 and the early part of 1928 was chiefly caused by the killing of shallow wells for deepening. Production during June was almost 6,000,000 barrels, comparing favorably with June, 1923, and running considerably higher than June, 1924.

Geology

The geology of the Long Beach field is very interesting and stands in a class by itself in many respects. Much work was done during 1922 and 1923, but the conclusions drawn at that time have been modified by later developments. A report by J. B. Case and Robert L. Keyes, published in October, 1923, gives an excellent idea of the field. It shows that "the formations exposed on the surface are loosely consolidated sands and gravels of the Pleistocene Age (San Pedro), and vary in thickness from 800-1200 feet. Dips exposed in numerous cuts show that the topography of Signal Hill is an approximately true expression of the folding of these upper formations. These beds lie unconformably on beds of Pliocene Age (Fernando). The Pliocene formations, as penetrated in drilling, are alternating beds of sand, sandy shale and shale. The sands vary from fine flour-like black and white sand to coarse-grained, gray and white sand. The shales are largely or-



ganic, brown and brownish gray, with some few beds of bluish gray." The report stated that the thickness of the Fernando formations at Long Beach probably was not less than 4000 feet and might be much greater. It stated further that some of the deepest wells then completed in the field probably were producing from the upper Miocene formation. Later developments have proved both theories correct. The bulk of the deep zone production is coming from the Miocene formation.

Formation Penetrated

A well 7500 feet deep on top of the structure penetrates, from top to bottom, the following divisions of the Fernando group rocks of the lower Pleistocene, Pliocene and upper Miocene, i. e., approximately:*

Three hundred feet of San Pedro (lower Pleistocene) sand.

One thousand feet of Saugus (transitional Pleistocene) sands and clays.

Twenty-one hundred feet of Pico (upper Pliocene) blue and brown sandy shale with fairly thick sands. The Pico formation contains the Wilbur and Alamitos oil zones, giving moderate yields of 23 to 26 gravity oils.

Twenty-five hundred feet of Santa Paula (lower Pliocene) brown sticky shale with thinner sands. This formation contains the brown oil zone yielding oils up to 30 gravity, and is the most prolific of the older zones.

Sixteen hundred feet of upper Miocene, gray and black shales with sands, containing the new deep development.

How much deeper the upper Miocene portion of the Fernando group sediments is productive is unknown, since all wells located high on the structure have so far stopped in oil sand. It was formerly thought that the Pico formation (upper Pliocene) contained the only productive horizons in the central part of the Los Angeles basin, but the new deep development along the Newport-Beverly sheer zone, like that at Ventura Avenue, is known to come from the lower Pliocene and upper Miocene parts of the Fernando groups, which are far below the Pico formation. This proving up of lower formations of the Fernando group sediments for production has added millions of barrels to the ultimate output of the field.

*After J. A. Eaton.

Surface Irregular

The surface of the field is irregular, particularly near the apex, which is marked by Signal Hill. The highest elevation is 365 feet above sea level, although the field is less than three miles from the Pacific ocean. The productive area comprises about 1400 acres, making it the smallest field in the world to have produced so much oil. The field lies partly in and partly north of the city of Long Beach and has a maximum width of less than a mile. The greatest length is about three and one-half miles.

Depth of Oil Sand

One of the truly remarkable features of the field is the depth of the producing sand. Completions show that it is possible to produce, theoretically at least, nearly 5000 feet of oil sand. A well drilled on top of the structure encounters the top of the Alamitos zone around 2500 feet. No water is found between this point and the greatest depth yet attained. This condition does not apply to edge wells, however.

Drilling and production methods have changed some during the past five years, but generally speaking the new deep development is patterned after the great development campaign of 1922-23. Rotary tools are used exclusively. Early completions included 2000 feet or more of producing sand but it was accomplished with greater ease than a similar body of sand is included in the deep zone. Where the producing zone extended from 3000 to 5000 feet, it now includes the sands lying between 5500 and 7500 feet. The shutoffs, coring and running of casing is much more difficult at the greater depths.

Heavy Equipment

The tendency toward heavier rotary equipment has been marked. A well intended for completion at 7500 feet would use approximately the following equipment.

One hundred and thirty foot combination (steel or wood) derrick.

Six-inch A. P. I. rig irons.

Three 70 horsepower, 150-pound, W. P., firebox type boilers.

Seven and one-half inch draw works.

Eight-sheave crown block.

Twenty-inch rotary machine.

Twelve by twelve, twin type, drilling engine.

Two 14x7¼x14 mud pumps.

One-inch casing line.

Six-inch, extra-heavy swivel.

Heavy traveling block.

Eight-inch casing hook.

Six-inch A. P. I. drill pipe to about 3000 feet.

Four-inch A. P. I. drill pipe from 3000 to bottom.

Three-inch A. P. I. drill pipe after oil string is run.

Drillometer.

Weight indicator.

Cathead.

Steel safety finger.

The above equipment may vary in several respects but should serve to illustrate what is used on an ordinary well. In many instances, the operators in moderate circumstances are using equipment far too light for such phenomenal depths.

Drilling Time

The average drilling time of 150 wells completed in the deep zone is 135 days. The average depth is about 6300 feet, but

this figure is constantly changing. Several wells have been completed below 7000 feet and one was finished at 7503 feet. The actual time consumed in making hole runs about 75 per cent. of the total elapsed time, the incidental time accounting for the remainder. Reaming, cementing, mudding and testing casing cut heavily into the total time.

Through the courtesy of the Shell Company, the complete drilling record of Martin 4 is given:

Depth	Inch Hole	Footage	Days	Ft. per Day
930	27	930	4	232
2731	17	1801	13	138.5
5041	10⅝	2310	34	67.9
6200	7⅝	1159	12	96.6
7060	7⅝	860*	26½	32.5

* Cored.

Total time making 7060 feet of hole—89½ days.

Average 78.88 per day.

Incidental time—27-inch hole.

Reaming . . . . . .1 day
Cementing 18-inch casing . . . . . .1 day

17-inch Hole—

Mudding, cementing and testing 11¾-inch hole . . . . . .12 days

10⅝-inch Hole—

Reaming . . . . . .2 days
Mudding, cementing and testing 8⅝-inch casing . . . . . .8 days

7⅝-inch Hole—

Reaming . . . . . .1½ days
Making up 5¾-inch oil string and cementing . . . . . .3 days
Standing cemented . . . . . .2 days
Drilling out and bringing in well..1 day
Total incidental time . . . . . .31½ days
Total drilling time making hole..89½ days
Total time overall . . . . . .121 days
Footage per day overall . . . . . .58.35 feet

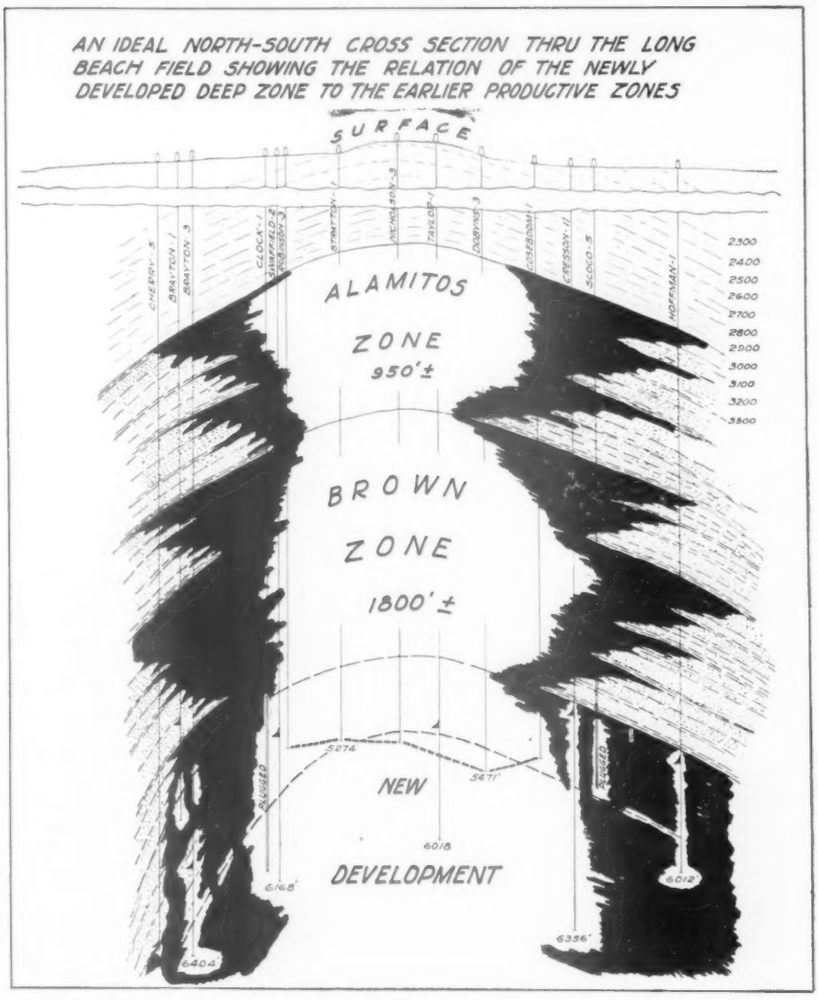
214,000 Barrels Per Acre

The Long Beach field has produced almost 300,000,000 barrels of oil, or about 214,000 barrels per acre. It is by far the richest field per acre in the world. Only with such a tremendous thickness of sand could an area yield so much per acre. A few wells have produced around 3,000,000 barrels of oil each in a very few years. One well produced 1,500,000 barrels within six months. With the outcome of the present deep development a question, it is impossible to estimate the ultimate recovery per acre. To some, 400,000 barrels does not seem too high, but a definite estimate is impossible. Enough oil has been taken from the field to cover the entire area to a depth of almost 28 feet.

Long Beach crude runs from 25 to 33 gravity, has an asphalt base and is very desirable for refinery use. It contains little or no water.

Gas Production

The production of natural gas has from the first been very important. Many wells have produced as much as five million cubic feet of gas, in addition to a very large yield of oil. The gasoline content of the gas runs from one to five gallons per thousand cubic feet.



Courtesy of Joseph Jensen and Glenn D. Roberts

The various operators in the field have developed the finest method of disposing of drilling mud, water and waste oil ever devised in any field. A vast system of field gathering lines have been built to carry all waste to a central treating plant, where the oil is recovered and clean water is sent back to the ocean. The system is of four-, six,- eight-, and 12-inch construction and will handle up to 100,000 barrels of waste oil, etc., per day. Each operator pays in proportion to the number of wells he has on the system.

Due to the location of the field, no large tank farms are required to handle the enormous production. Many refineries are located within a stone's throw of the field and tank farms constructed to handle production from other districts receive the oil.

Drilling Cost

The cost of drilling a well in the Long Beach field ranges from $90,000 to $125,000, depending upon the many factors involved. The average 6000-foot well costs about $20 per foot. The older wells came a little less expensive, making the average cost of all wells around $100,000. Using this figure as a base, the 800 wells have cost approximately $80,000,000 to drill. Many wells have been killed to deepen and many have been abandoned outright, where they were located on the extreme edge of the field. The drilling cost alone of the 300,000,000 barrels recovered has been nearly 40 cents per barrel.

It is very interesting to recall that one of the major companies once drilled a well in the field, but didn't know it. The test was taken to 3500 feet and abandoned as a bad job. The company had leased all of the central and western part of the field, but let their vast holdings revert to the original owners, after charging the venture to experience.

Regardless of the mad scramble for oil, there is at least one sacred and untouched spot in the field. A large cemetery occupies what would be some of the most valuable leases. Wells have been drilled on almost every side, but this silent tract will never be disturbed.

Much of the Long Beach field was used for strawberry patches prior to the discovery of oil. A man who once owned the very knob of Signal Hill recently returned to California to learn that he let 40 fortunes slip from his fingers, so the story goes but regardless of this tact, the Long Beach field continues to produce 200,000 barrels daily and will be a factor in California production 10 years hence.

Second Edwards Lime Field In Texas

There seems little doubt that a field of considerable importance has been opened by Roxana Petroleum Corporation in Caldwell County

By RICHARD A. JONES
Geologist

SINCE discovery of the Luling field in Caldwell County, Texas, in August, 1922, and subsequent development of the pool during 1922-23, there has been constant search for new fields, that also should produce from the Edwards limestone of Lower Cretaceous or Comanchean age. Finding of oil accumulation in the Edwards lime at Luling was a surprise, and the prospects of establishing a pool of significant proportions were looked upon with pessimism in the earliest days of drilling along the Luling fault. However, the Luling field soon demonstrated the value of the Edwards limestone as a reservoir of large-quantity production, when suitable structure was present. Moreover, the record of the Luling field shows that the Edwards lime is a steady and consistent producing horizon. The field is now, six years after discovery, yielding between 13,000 and 14,000 barrels per day.

After the capabilities of Luling were proven, both major companies and independent operators began an intensive drilling campaign for other Edwards lime pools in the fault zone of Southwest Texas. Scores of wells were drilled, and hundreds of thousands of dollars, perhaps millions, were spent in lease and royalty buying and in sinking wildcat holes in Bastrop, Caldwell, Gaudalupe, Bexar, and Medina Counties. This great effort was disappointing. Faults with large displacement, similar to the Luling fault, were tested without profitable result. Now and then cores of the Edwards displayed oil saturation, but no wells were dedeveloped; and usually a flow of sulphur water was found in the top of the Edwards limestone, instead of the much desired petroleum.

Five years of such depressing drilling, lessening in volume as the years passed, continued, until it seemed that Luling was fated to be the first, last, and only oil field, producing from the Edwards lime—a unique and solitary phenomenon, not to be duplicated. Thus, when Roxana Petroleum Corporation made a well and discovered a new field in the Edwards limestone in June, the well was almost as great a surprise as the original Luling producer.

Discovery Well

About the middle of June, Roxana Petroleum Corporation's A. W. Jolly 1, was completed at 1335 feet, making about 35 barrels of oil and 190 barrels of sulphur water per day. There was difficulty in bringing in the well. A core carrying oil was taken at 1307 to 1309 feet. At 1310 feet another core was obtained, which showed both oil and sulphur water. Cores from 1313 and 1314 feet were dry, it is reported. More cores, taken from 1315 to 1324 feet, exhibited considerable porosity. The well, at the last mentioned depth, swabbed and bailed about one barrel of oil per hour, with a large amount of sulphur water. It was then deepened to 1335 feet, and became a commercial producer. July 21 it is pumping around 30 barrels oil and 330 barrels of sulphur water daily. The oil is about 27 degrees gravity, similar to Luling crude.

The discovery well is on the Jolly farm, about two miles west of Lockhart, the county seat of Caldwell County. It lies within the angle formed by the Austin-Lockhart highway and the Missouri-Kansas-Texas Railway, being about one-half mile north of the railroad and about one-fourth mile west of the highway. The foot location is as follows: 855.5 feet southeast, along road or northeast line, from north corner of A. W. Jolly 118-acre tract, Cornelius Crenshaw Survey; thence 1300 feet southwest from road or northeast line.

Usually the first well in a field is not as good as later wells, because the local conditions of geologic formations and the most efficient manner in which to handle such conditions are not as well understood as after the experience gained in drilling the initial well has been analyzed and profited by; and because the first well often points the way to selection of drilling sites more favorably located structurally. Many good fields have been brought in by small wells; witness Santa Rita 1, the discovery well of the famous Big Lake pool in Reagan County, West Texas, which came in for only 80 barrels daily. The original well of the new Edwards lime field, with its initial production of 35 barrels of oil and 190 barrels of sulphur water, is typical of discovery wells. Like other discovery wells, it does not, therefore, enjoy the prestige, which justly belongs to it, despite its small daily yield. The writer asked the foreman on the Roxana Petroleum Corporation lease, if it would be alright to take a snap-shot of the derrick and pumping beam. He laughed and replied:

"Go ahead! It might do her some good to have her picture taken."

Second Well

For the second test, Roxana Petroleum Corporation made location 600 feet north 36 degrees west, from Jolly 1. The total depth of Roxana Petroleum Corporation Jolly 2 in 1296 feet, and it is a really good well. It flows some, but is better on the pump, making 350 to 400 barrels of oil per day at present writing, with only 2 per cent. of sulphur water.

The steel derricks marking the new pool arise from a landscape of well-cultivated corn, cane, and cotton fields. The topography is almost flat, and the soil is heavy "black-land," which will become bottomless mud when the rains commence next fall and winter.

Geology

The Roxana wells are located on the upthrow side of a fault, belonging to the Luling fault zone. The fault has downthrow to the northwest and upthrow to the southeast. The fault is about 10 miles north of the Luling fault, and is a parallel fault to the latter, being what is termed an "inner" or up-dip fault. It is about 900 feet in regional geology up the dip from the Luling fault; for the top of the Edwards lime at the Roxana Petroleum Corporation locations is reached at approximately 1300 feet, in contrast to Luling, where the top zone of the Edwards produces from an approximate depth of 2200 feet.

The writer has never personally studied the surface evidence of faulting near the Roxana wells, but he is informed that Midway is faulted against Navarro. The fault is thought to have a displacement of 300 feet or more. The area was worked by mapping surface geology, by core-drilling, and by the use of geophones. The geologists who determined this fault did painstaking, accurate work, and they deserve a large amount of credit, as the local character of the country is such that geological mapping is difficult, especially mapping of such refinement as to locate the exact surface trace of the fault.

Following are figures on the depths of various formations:

Roxana Petroleum Corporation's Jolly 1—

Top of Austin chalk, 938 feet.
Top of Eagle Ford shale, 1150 feet.
Top of Buda limestone, 1164 feet.
Top of Del Rio clay, 1222 feet.
Top of Georgetown limestone, 1270 feet.
Top of Edwards limestone, 1307 feet.

Roxana Petroleum Corporation's Jolly 2—

Top of Austin chalk, 1012 feet.
Top of Eagle Ford shale, 1118 feet.
Top of Buda limestone, 1135 feet.
Top of Del Rio clay, 1193 feet.
Top of Georgetown limestone, 1231 feet.
Top of "Dobie" (The term "Dobie" is applied in the field to a transition zone of a few feet of clay, which occurs between

the Georgetown and Edwards limes), 1268 feet.

Top of Edwards limestone, 1271 feet.

Analysis of the above data gives considerable information on the sub-surface conditions prevailing at the two wells. Jolly 1 has a surface elevation of 572 feet. In this well, then, the top of the Austin chalk is 366 feet below sea level datum; the base of the Austin chalk, or the top of the Eagle Ford shale, is 578 feet below sea level; and the top of the Edwards lime is 735 feet below sea level.

Elevation of Jolly 2 is 570 feet. The top of the Austin chalk is, accordingly, 442 feet below sea level; the base of the chalk, or the top of the Eagle Ford shale, is 548 feet below sea level; and the top of the Edwards limestone is 701 feet below sea level.

It will be noted that Jolly 2 found the top of the chalk 76 feet lower, absolutely, than the top of the chalk in Jolly 1, which is 600 feet down-dip to the southeast; but that the base of the chalk is 30 feet higher than the base of the chalk in Jolly 1.

This discrepancy between the elevation, or rather depth, of the top and the base of the chalk, in terms of sub-sea datum, in Jolly 2 is due to the fact that part of the chalk has been faulted out. The well has passed through the fault plane, where it cuts the Austin chalk.

Normal thickness of the chalk in this area is something over 200 feet, a thickness smaller than is found in some other regions along the Balcones fault zone. Sun Oil Company's Cardwell 1, about two miles northeast of the Roxana Petroleum Corporation's wells, had a thickness of 240 feet of chalk. Wilford et al's Schroeder 1, approximately one and a half miles south of the Roxana Petroleum Corporation's locations, penetrated 216 feet of Austin chalk.

A normal thickness of chalk was found in Jolly 1, 212 feet of the formation being drilled through. However, Jolly 2 had but 106 feet of chalk. Exactly one-half of the chalk section found in Jolly 1 has been faulted out.

Top of the Austin chalk, as found in Jolly 2, is not, therefore, a marker by which to determine formational dip. The base of the chalk gives the dip between the two wells, showing that Jolly 2 is 30 feet higher on structure than Jolly 1; that is, the chalk dips 30 feet in the 600 feet between Jolly 2 and Jolly 1. This is equivalent to a dip of 264 feet to the mile, or a rate of dip of almost 2.9 degrees.

The upper surface of the Edwards lime checks the dip between the two wells given by the base of the chalk. The top of the Edwards limestone in Jolly 2 is 701 feet below sea level, 34 feet higher than the top of the Edwards limestone in Jolly 1, which records the lime 735 feet below sea-level.

Jolly 1 drilled into the Edwards for 44 feet, from 1307 feet to 1351 feet. In Jolly 2 the Edwards was penetrated for 25 feet, from 1271 feet to 1296 feet.

It appears that Jolly 2 is very near the summit of the structure, and not far from the trace of the fault in the Edwards limestone. Since the plane of fracture in faults such as that which is producing oil

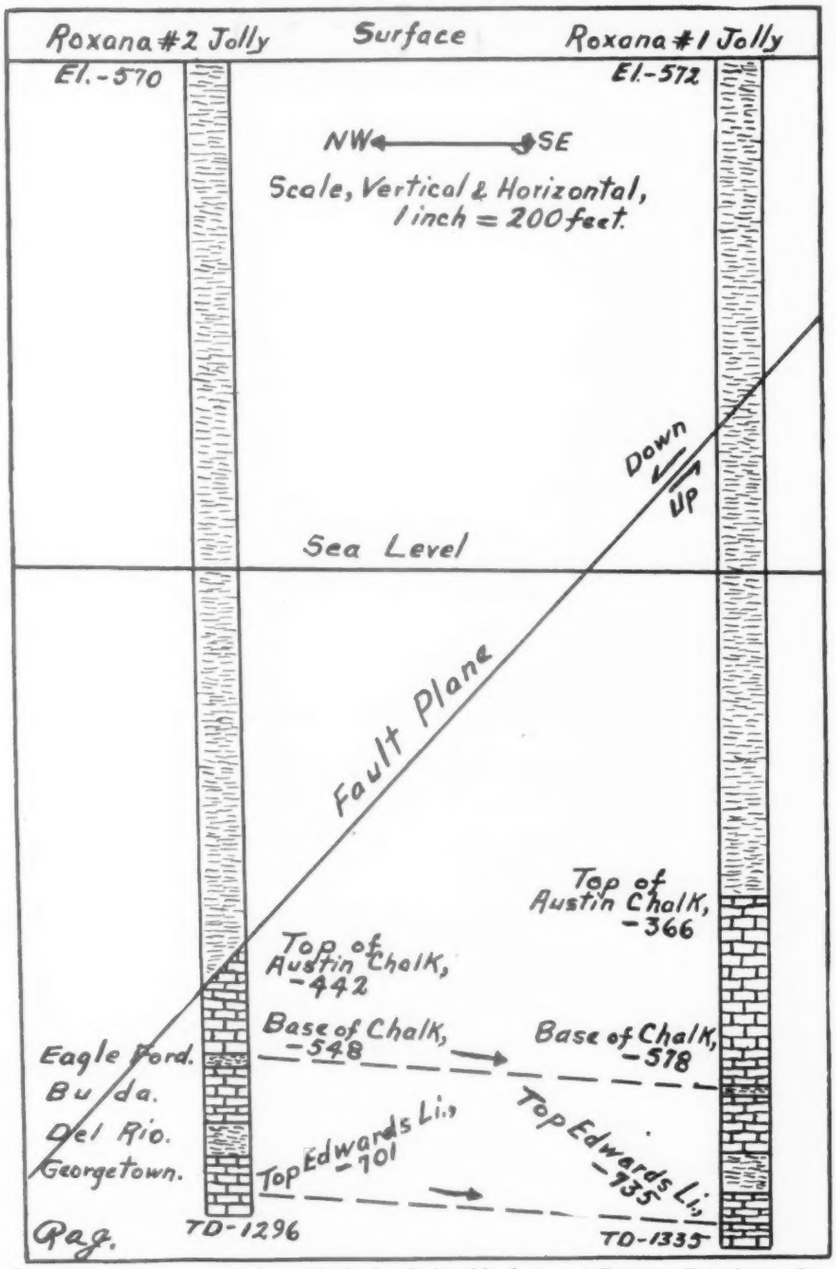


Diagram showing probable geological relationship between Roxana Petroleum Corporation's Jolly 1 and 2, in the new Edwards lime field, two miles west of Lockhart, Caldwell County, Texas.

at the Roxana Petroleum Corporation's locations often has an inclination which may average 45 degrees, it is possible that another location northwest or west of Jolly 2 might still strike the Edwards on the upthrow side and make a well, but this is an uncertain matter. It seems that the surface trace of the fault may lie a short distance southeast of Jolly 1. The probable structural relations of the two wells are shown in the accompanying diagramatic sketch.

Other Operations

But one other operation than the Roxana Petroleum Corporation's wells has been initiated in this new producing area. Cranfill-Reynolds' Starcke 1 is drilling on a 20-acre tract, adjoining the Austin-Lockhart highway on the east. The derrick is immediately east of the road, bearing north 33 degrees east from Roxana Petroleum Corporation's Jolly 2, and about a quarter of a mile distant.

The Cranfill-Reynolds test has a very critical location, with respect to the fault trace in the Edwards limestone. At date of this writing (July 21, 1928), the total depth is 1272 feet. To 1268 feet no Austin chalk had been found, and at that depth a core of bluish, shaley material was taken, which had a sulphur odor and considerable oil in crevices and fracture planes. This shaley material appears to be Taylor marl. Below it gray lime was cored.

It is possible that the well may be on the down-throw side of the fault, with respect to the slippage in the Edwards lime, and will find no production. On

the other hand, it is possible that the entire Austin chalk section has been faulted out, and the well may go from the Taylor into the Edwards and secure production. Such elision of large thicknesses of the geological section has been known to occur in the fault fields. The near future will tell the outcome of this test, and its geological status with relation to the structure.

Fifth Field for Caldwell County

The new pool opened by the Roxana Petroleum Corporation wells is the fifth field for Caldwell County, and the second Edwards lime field for the county and for Texas. The other four fields are the Luling, or original, Edwards limestone pool; the two pools of Lytton Springs and Dale, producing from serpentine, or altered igneous rock; and the Bruner field, now being developed in the Austin formation.

Thus, Caldwell County now has production in both the Upper and Lower Cretaceous, and in altered igneous material. Chances for deep production in the Glenrose limestone and Trinity sands of the Lower Cretaceous also exist, but few holes have tested these formations, and no oil has so far been found in them.

The Luling pool is five or six miles west of the town of Luling. The Bruner field is a mile or so north of Luling. The Lytton Springs field is about seven miles northeast of Lockhart, the county seat. The Dale pool is approximately seven miles north of east of Lockhart and southeast of the Lytton Springs field. The well drilled by Dr. James Bute, Branyon 1, about two months ago, which yielded a large amount of oil, with the promise of a field, but which has since had various dry holes sunk adjacent to it, is about five miles southeast of Lockhart.

The new Roxana field is about two miles west of Lockhart, and approximately ten miles north of the Luling pool, as has been mentioned in previous sections of the present article; and is seven miles southwest of the Lytton Springs field.

Future Development of Field

There seems little doubt but that a field of considerable importance has been opened by the Jolly wells of Roxana Petroleum Corporation. The fact that Jolly 2 is a 350 to 400 barrels well shows that oil is present in quantity in the Edwards limestone. The pool, if it follows the example set by previous fault fields, will be a narrow shoestring, trending northeast and southwest. Whether it will attain large daily production remains to be seen from future development. The shallow depth of the oil, approximately 1300 feet, and the consequent low drilling cost and casing expense renders the field very attractive. Roxana Petroleum Corporation has a block of around 3000 acres, in which Humble Oil & Refining Company has an interest. It appears that the larger part of the desirable acreage of the new pool is included within the boundaries of this block, so that there should be comparatively little competitive drilling, and a good opportunity for conservative, unit exploitation of the field.

St. Louis Well Increases Flow When Deepened

Tulsa.—T. B. Slick's Hembree 2, offset to the initial Wilcox well in the St. Louis field, was deepened 13 feet Tuesday morning to 4135 feet, 29 feet in pay, and increased from 205 to 400 barrels an hour. It was completed Monday morning in the southeast of the northwest of the southeast of Section 19-7-5.

There are 70 wells drilling around the Wilcox sand producers in Township 7-5, and 55 drilling in the Hunton and Simpson area of Township 7-4.

The Wilcox sand in the St. Louis pool is very loose, and production is expected not to hold up when offsets are completed. Magnolia Petroleum Company holds approximately 75 per cent of the surrounding acreage, except to the south where checkerboarding is resulting in rapid development. Except for big production through this checkerboarded strip, St. Louis is not estimated to reach dangerous proportions.

10 Tests Drilling in Newly Opened Area

Tulsa.—Development in the vicinity of Tidal Oil Company's Wilcox discovery well between Vernon field of Kay County and North Braman field had reached 10 operations the first week in August. Cole 3, the discovery well, was making an average of slightly less than 300 barrels daily from 3358 feet, 31 feet in Wilcox pay, flowing under 185 pounds back pressure. Location of this producer, which is approximately a month old, is in the center of the north half of the southeast quarter of Section 18-29n-1e.

Tidal Oil Company is drilling three offsets, all of which are in the center of the "forties," making quarter-mile locations except for Nos. 1 and 4, which are regular distance locations due to the fact that the discovery is on the line between two "forties." Cole 1, in the center of the northeast of the southeast of Section 18, was below 2500 feet early last week. Cole 2, in the center of the southeast of the southeast of Section 18, was underreaming at 2300 feet. Cole 4, in the center of the northwest of the southeast of Section 18, was ready to spud.

Carter Oil Company and Ona Oil Company are jointly drilling four locations. Johnson 2, in the center of the south half of the northeast of Section 18, was nearing 3000 feet. Johnson 3, in the center of the east half of the northeast of Section 18, was nearing 2400 feet, Mefford 1, in the center of the southeast of the northwest of Section 18, was approximately 1000 feet, and Shimp 8, in the center of the northwest of the southwest of Section 17, was at 1750 feet. Marland Oil Company is drilling White 3, in the center of the southwest of the northwest of Section 17 around 3000 feet, and Vernon Oil & Gas Company was below 2800 feet in Piner 1, in the northeast of the northeast of the southeast of Section 19.

Oklahoma City Test

Oklahoma City.—Indian Territory Illuminating Oil Company's Oklahoma City 1, discoverer of 30,000,000 cubic feet of dry gas three weeks ago at its location in the center of the southeast of the southeast of Section 24-11-3w, Oklahoma Count, and six miles south of Oklahoma City, developed little of interest during the past week. Reports Monday morning showed the test at 4442 feet in sandy lime with nothing showing.

Gilliland Reorganized

Tulsa.—Reserve Petroleum Company has been organized to succeed the Gilliland Oil Company, which, in effect, means the reorganization of the latter company following the straightening out of affairs after going into receivership. Gilliland Oil Company, organized in 1916 by John W. Gilliland as a Delaware corporation, was for many years among the most aggressive independent concerns in the Mid-Continent, but failed following the slashing of crude prices in 1922 from $3.50 to slightly more than $1.00 per barrel.

Fred Phillips continues to head the organization, having been made president of the Reserve Petroleum Company. P. J. Hurley is chairman of the board, D. W. Johnson, vice president and treasurer, and C. M. Christenson, secretary. Offices are maintained in the Tuloma Building.

Taking over the holdings of the Gilliland Oil Company, the new concern has properties in Oklahoma, Kansas, Texas, Arkansas and Louisiana, including proven and wildcat acreage and several gasoline plants.

Prairie Shipments

Tulsa.—Prairie Pipe Line Company crude shipments for July totaled 5,701,370 barrels, a daily average of 183,915 barrels, bringing total shipments for 1928 to 37,032,360 barrels, or a daily average of 173,860 barrels for the seven months. This total compares with 37,456,733 barrels for the first seven months of 1927, a daily run of 176,682 barrels. July shipments compare with 5,294,564 barrels of June, a daily run of 176,485 barrels.

R. E. Wertz, vice president and general manager of Producers & Refiners Corporation, Independence, Kansas, returned last week to his headquarters from a trip in the Oregon Basin country.

Greater Seminole Production Substantially Up

Appearance of water in South Little River, another big well in St. Louis pool and wildcat strikes in Kansas among week's features

By WALLACE DAVIS
Staff Representative

TULSA. — Appearance of water in South Little River and St. Louis fields, discovery of big pay in the Mission of western 8-6, a sharp increase in Greater Seminole production, completion of another big Wilcox well in St. Louis field, and two wildcat strikes in Kansas, kept interest in the Mid-Continent going at a rapid clip through the past week.

After hinging around a 238,000 barrels average yield for the past 10 days, Seminole production increased with the Tuesday morning gauge to 247,426 barrels from 1110 wells. The output by fields for August 5 and 6 was as follows:

	Aug. 5		Aug. 6	
FIELD—	Wells	Prod.	Wells	Prod.
Little River	142	45,717	143	45.038
Bowlegs	324	56,521	324	59,126
Earlsboro	274	74,943	273	76,456
Seminole City	296	49,828	296	51,294
Searight	69	12,766	69	13,038
Maud	3	.....	3	.....
Totals	1108	239,775	1108	244,952

A single well was added to Little River between the two gauges, but the abandoning of Barnsdall Oil Company's Sango 4, in Section 1-9-5, Earlsboro field, held the total to 1108 on Monday.

Seminole's biggest increase resulted in completion by Gypsy Oil Company of Barkus 1, in the southeast of the northwest of Section 6-9-6, the Mission area west of Bowlegs, for 200 barrels an hour Saturday from Wilcox sand at 4206-15 feet. In accordance with proration in force in this outside area the well was pinched to 50 barrels Sunday, and went dead for two hours. Swabbing brought back the flow to 210 barrels an hour. Production for 22½ hours ending Monday at 7 a. m. was 2950 barrels. The well will again be pinched in. It ran somewhat higher than most of the other locations drilling in the Mission area, and is the best well yet completed there.

Little River Rushing

Of the 134 wells drilling in South Little River field, there were 58 standardized Sunday. The common standardizing depth is at the top of the Woodford formation, which averages 430 feet, or approximately 175 hours drilling time from the top of the Wilcox. Of this number standardized there are three which have made some oil. Blackwell Oil & Gas Company's Bennett 3, in the northwest of the northwest of the southeast of Section 11-7-6, two locations north of Gypsy Oil Company's Denmark 1, produced 830 barrels Sunday from Wilcox sand at 4537 feet, cutting five per cent. b. s. and two per cent. water. It is reported as probably on a fault, but lends considerable weakness to the field. Denmark 1 was completed May 17 for 4016 barrels from Wilcox at 4297-4300 feet. Blackwell Oil & Gas Company's Bennet 1, north offset to Denmark 1, created considerable interest late last week by producing from Mayes lime from 4130-32 feet, the first Seminole production recorded from this formation. Saturday it gauged 418 barrels in five hours. This freakish run of the pay, plus discovery of b. s. and water, offers further strength to the recent theory that Little River's south extension will probably turn weak.

A second water weakness developing in South Little River is in Independent Oil & Gas Company's Williams 1, in the southeast of the northeast of the northeast of Section 15-7-6. Eight-inch was set at 3815 feet to shut off water, but while drilling at 3830 feet Monday the hole was full of water coming from around the pipe.

T. B. Slick, Inc., added a big Wilcox producer to St. Louis field of Pottawatomie County Monday morning, giving the field four Wilcox wells and offering much strength to the south side of the Wilcox sand pool in Section 19-7-5. This concern's Hembree 2, in the southeast of the northwest of the southeast of Section 19, flowed 640 barrels from 10:45 Monday morning to 2 o'clock Monday afternoon after drilling 15 feet into Wilcox sand topped at 4106 feet, and was increasing at that time.

Production from two Wilcox wells at St. Louis Monday morning totaled 17,193 barrels, and production from 25 Simpson sand wells totaled 18,458 barrels. Magnolia Petroleum Company's Hembree 1, in the northwest of the southeast of Section 19, flowed 8300 barrels Sunday, cutting one per cent. water and 8308 barrels Monday, cutting one-half of one per cent. water. A treating plant was installed during the week. Magnolia Petroleum Company's Fyke 1, discovery producer in the northwest of the southwest of the southeast of Section 20-7-5, made 3048 barrels Sunday and 3004 barrels Monday, and production was around 98 degrees temperature. No salt water was reported showing at that time, but was expected to appear with the rising temperature of production.

Due to several bad holes in the 19-7-5 development several wells nearing completion have been held up, but by August 15 more than a dozen wells should be completed in the Wilcox pool vicinity.

Further weakening of the area to the north of the St. Louis Wilcox production is had with Magnolia Petroleum Company's Bullock 1, in the northwest of the southeast of the southeast of Section 18-7-5, which filled with salt water from Viola lime at 4170-85 feet, and was plugged last week. Magnolia's Yants 1, in the northeast of the southwest of Section 19-7-5, topped Simpson sand at 4215 feet, and flowed 838 barrels in 16 hours Saturday while drilling to 4250 feet. Mid-Kansas Oil & Gas Company's Gesselman 1, in the southeast of the southwest of the northwest of Section 25-7-4, flowed 2245 barrels at Monday's gauge, and has been making a small show of water since completion July 30.

Allen field of Pontotoc, Seminole and Hughes Counties produced 22,260 barrels daily for the week ending August 5, which is a new peak for this area. Production was from 123 wells.

In Bowlegs pool, T. B. Slick's Jones 1,

Propose Extension of Seminole Shut-Down

Tulsa. — The general committee on Mid-Continent conservation will start immediately to outline a reasonable plan curtailing production in all of the outside areas of Greater Seminole, including St. Louis field of Pottawatomie County, and will submit such plan at the earliest possible date to the operators for approval.

I. G. Harman, production head of Marland Production Company, made motion for the above action which was favored by approximately 50 operators meeting Tuesday afternoon with the umpire here.

Another progressive step taken was the extension of the shutdown program in the Mission and Maud pools of township 8-6 and 8-5 respectively for 30 days. Finding of further prolific production in St. Louis field has made it necessary that it be included under the general Seminole proration measures henceforth.

Umpire Collins estimated that Greater Seminole area, including St. Louis, could produce 550,000 barrels in 60 days if restrictions were removed.

in the southwest of the southeast of the southeast of Section 3-8-6, swabbed 175 barrels from 4390-4400 feet after a second 20-quart shot.

Earlsboro Extension

Skelly Oil Company and Atlantic Refining Company's Cherry 1, in Section 6-9-6, extension well one-half mile east of the northeast edge of Earlsboro field, was holding at 3405 barrels at Monday's gauge after producing about two months. Gypsy Oil Company's Sango 10, in the northeast of the southeast of the southeast of Section 1-9-5, west of Cherry 1, topped Wilcox sand at 4400 feet and after drilling in eight feet and getting a 10-quart shot swabbed 242 barrels Sunday. Sango 8, on this lease, topped Sylvan shale at 4184 feet. Sango 7 produced 1775 barrels Sunday from Wilcox sand at 4346-65 feet after being shot and on production for more than a week. Burke-Greis Oil Company's offset to the Cherry 1 producer was drilling in Viola lime Monday with no show at its location in the southwest of the northeast of Section 6-9-6.

Interesting Wildcat

The most interesting location in the Fox-Graham-Healdton district of Southern Oklahoma is a semi-wildcat of Roxana Petroleum Corporation, Eason 1, in the northwest of the southwest of the northwest of Section 6-2s-3w, Carter County, and near the Stephens County line. Depth August 4 was 2676 feet in shale, and not a water sand had been encountered. It is directly in line with an important production trend, and is more than three-quarters of a mile from any former test. Production lies on practically every side, with the southwest edge of the old Fox field running one and one-half miles to the north, a branch of Fox field two miles east, the end of which as yet has not been condemned, and another production line running past the location on the south. Production at this location, which looks highly probable, would result in immediate development, considering that more than a half dozen major companies have the surrounding acreage checkerboarded. Gypsy Oil Company owns the 80 offsetting to the west, Atlantic Refining Company owns 60 acres offsetting on the north, Roxana Petroleum Corporation holds approximately 300 acres surrounding the 40-acre tract under the location, and The Texas Company, Humble Oil & Refining Company, Magnolia Petroleum Company, Carter Oil Company and Wirt Franklin are protected close in.

Hammon & Cox's Vorhees 4, in the southeast of the northwest of Section 23-1s-3w, four miles northeast of the Roxana Petroleum Corporation wildcat, flowed 60 barrels an hour late last week from a series of five sands from 2292-2569 feet, producing through 429 feet of perforated liner set in shale on bottom at 2705 feet. This well is a south offset to Vorhees 3, which about a month ago had an initial yield of 3300 barrels from broken sand. Such recent good completions as these have directed much buying of late into the old Fox-Graham district.

Kansas Gas Discovery

An important gas strike was made by Roxana Petroleum Corporation late last week in Haury 1, in the northeast of the southwest of the southeast of Section 11-23s-2w, Harvey County, Kansas, three miles north of Halstead, 15 miles west of the nearest oil production at Newton field and 25 miles south of McPherson gas field. The well gauged 7,194,300 cubic feet of gas with an estimated rock pressure of 1000 pounds. Production is coming from chat at 2965-69 feet. This level is the same horizon from which Mid-Kansas Oil & Gas Company recently got a 200-barrel well in the McPherson gas field, and operators will likely deepen the hole for possible oil pay.

A second interesting strike of the week in Kansas was made by Galt-Brown Company. Fross 1, in the center of the northeast of Section 18-17-1w, about 24 miles northeast of McPherson gas field, swabbed 130 barrels of oil and 20 barrels of water from 2692 feet in chat. The oil tests 34 to 36 gravity. Total depth was 2684 feet. This discovery, regardless of its outcome, is due to result in considerable play for northern McPherson, southern Saline, and to the east toward Lost Springs field of Marion County, where chat production has resulted in more drilling this year than at any other section of Kansas. The location is nine miles west and slightly north of Roxbury and five miles east of Lindsborg.

Oxford field of Sumner County last week reached a new low output since its peak, averaging 9920 barrels for the week ending August 4, a loss of 700 barrels from the previous week. Churchill field, five miles north of Oxford, revived its production during the week, making 9790 barrels against 9530 barrels of the last week in July.

Drill for Salt Water in Louisiana

Shreveport, La.—Plans have been made for the drilling in Bossier Parish of a test which will be successful only if salt water is found. If only oil is produced the test will be a failure and another must be drilled.

Capitalized for $50,000, the Jones Chemical Company, headed by C. W. Jones, chemical engineer, has been organized with the object of investigating the practicability of using salt water from oil wells on a chemical basis. As the first step in its plans, the company will drill for salt water in Bossier Parish between Elm Grove and McDade. Although similar tests have been made in Oklahoma and in Michigan—those in Michigan having resulted in the development of an important industry—this venture of the Jones Chemical Company is the first of its nature in Louisiana. If it proves successful, the project will result in the manufacture of various products, including salts and compounds of magnesium, sodium and the other minerals found in subterranean salt water; and will offer a partial solution of the problem of handling the salt water in the oil fields.

It was through the efforts of W. F. Chisholm, head of the minerals division of the department of conservation, that Mr. Jones became interested in the possibilities of the Louisiana fields, and the formation of the company was decided upon after it had been urged for a year and a half by Mr. Chisholm and the industrial department of the Shreveport Chamber of Commerce.

In conducting its experiment, the Jones Chemical Company is drilling its own well, as it is considered more practical to do so than to provide a gathering system for the use of salt water from oil wells.

Gasoline Demand Insures Firm Market to Continue

(Continued from page 26)

turned to the new producer. The well was completed at 3000 feet and seems to offer almost unlimited possibilities in a producing area as large as half a dozen ordinary fields. This part of the field has produced from the shallow sands for years. The completion of such a large well means that the southwestern part of the field will be re-developed. The Midway-Sunset field has already produced more oil than any other field in the world and seems in line for still further honors. The crude runs around 22 gravity, a grade which will have a harmful effect on the market if produced in large quantities. Of the three producers completed in the new sand, all have been good wells.

The new Elwood field in Santa Barbara County will soon be a market factor, but fortunately, production will be controlled by two companies. The oil is very light and will seriously affect the gasoline situation if a large production is developed.

Long Beach has temporarily been cast aside for the newer developments, but it is still a dangerous factor, especially so, since there is a possibility of a much larger production from other fields. More than 190 wells are drilling and the chances are better than even that production will go higher during August. Small premiums are still being paid for oil not covered by contracts.

Latest figures show that gasoline consumption in California is running six per cent above last year. The danger of another price war apparently has passed, although there is a considerable variation in the differential offered dealers. The price increases in the East have not been met in California.

Foul oil is moving slowly, with prices about steady. The market is not especially strong, however, and probably would weaken from even a slight increase in crude production.

W. C. Andrus of Houston, salesman of the Cameron Iron Works, made a business trip last week to Shreveport, Louisiana, and while there visited the offices of the minerals division of the state department of conservation.

Rush on for New Deep Zone at Santa Fe Springs

Expected production will not materialize until early in 1929 as few wells are in position to deepen; Long Beach production off

By BRAD MILLS
Staff Representative

LOS ANGELES.—Running true to form, the rush for the Santa Fe Springs field has become nothing less than a young riot, with almost every operator—large and small— in a merry race for the new zone recently discovered by the Wilshire Oil Company. A dozen rigs have sprung up and at least 50 additional locations have been made in every part of the field that should be productive in the deep zone.

As significant as the discovery is, it probably will be early 1929 before the field starts pouring out another flood of crude. The fact that very few wells are in a position to be deepened is at least one bright spot in the situation. About eight wells in 10 will be started from the surface, according to field experts. When it is recalled that the field has already experienced one deep sand boom, it is easy to understand why the old wells are in no position for deepening. It was necessary to set a string of casing above the Bell zone, and when the wells were taken to the Meyer zone, still another string was cemented. This squeezing down or reducing has left the wells with a very small string of casing cemented above the Meyer, or present producing zone.

Wilshire Secretive

A careful survey of the field fails to reveal the exact number of locations. The larger companies change sites from time to time and many of the smaller companies are planning wells, but have not made public their intentions.

In the meantime, the Wilshire Oil Company's well, Buckbee 1, is producing above 2000 barrels from about 6000 feet. The company refuses to divulge any information and it will be necessary for other operators to core a great deal of the time below 5000 feet.

Long Beach showed an appreciable decline during the week, with only five new wells to carry the burden. The initial production of these wells averaged above 1400 barrels, but the field decline was much greater than usual, running about 11,000 barrels, as compared with about 7000 barrels during the preceding week. The temporary lull promises to extend into next week, and a still greater field decline is expected. The area is hanging in a balance, however, and a few large completions could easily upset the belief that all danger has past. About 190 wells are drilling and new locations are being made at the rate of five per week. Nine wells are drilling below 7000 feet, and there is a gradual tendency toward deeper completions. For a time after a few unsatisfactory tests below 700 feet, the operators completed between 6200 and 6700 feet. The recent completion of two large wells below 7300 feet had a pronounced effect and there is a desire to finish the wells as deep as possible to include what is an almost virgin sand in some parts of the field.

Coring in Deep Sand

Shell Company's Nicholson 5 is coring at 7507 feet and is still in a good oil sand. This well is the most interesting in the entire field, having been in an almost unbroken oil sand for 4500 feet. If the oil sand continues, the company stands an excellent chance of completing the well as the deepest producer in the world.

George Langstaff's outpost well, regarded as a strict wildcat, has reached 4510 feet, but has not been able to correlate the various formations with those found in the field. The well had excellent showings at a nominal depth, but has not been so impressive below 4000 feet.

Completions for the week were:

General Petroleum Corporation, Signal 2; initial production 1200 barrels, total depth 7369 feet, gravity 31.2, cut 1.8 per cent.

Herndon Petroleum Company, No. 7; initial production 2000 barrels, total depth 5364 feet, gravity 29.0, cut 10.2 per cent.

Shell Company, Dobyns 5; initial production 1100 barrels, total depth 6952 feet, gravity 30.7, cut 7.0 per cent.

Shell Company, Pala 2; initial production 1000 barrels, total depth 6966 feet; gravity 26.0, cut 14.0 per cent.

The Texas Company, Schilling 5; initial production 2000 barrels, total depth 6595 feet, gravity 28.0, cut 4.0 per cent.

2500 Barrels at Midway

Completion of a 2500-barrel well in the Midway field by the Chanslor-Canfield Midway Oil Company was one of the outstanding developments of the year in the San Joaquin valley and may be the cause of an extensive drilling campaign in the southwestern part of the field. The new producer is located on Section 7-32-23 and definitely proves that the Republic Petroleum Company's discovery well on Section 8 was not a freak. The oil is 22 gravity and shows only a small cut. C. C. M. O. undertook soon after the completion of the discovery well to ascertain the extent and value of the new deep sand. Due to freak conditions in some parts of the field and the fact that the early producers flowed at a very high rate and almost suddenly stopped, there was reason to believe that the 1100-barrel Republic well on Section 8 had struck a pocket of oil and gas. C. C. M. O.'s first well on Section 8 flowed 600 barrels. It was not large enough to confirm the theory that the sand would be uniform and extensive, and not small enough to be ignored. The company's second and latest completion is of tremendous importance and means that a large production from the new deep zone alone is possible. The well was drilled to 3003 feet and completed only after mechanical difficulties. The southwestern part of the Midway field has produced from shallow sands since 1911, the older wells having been completed around 1000 feet. Until recently the leases on and near Sections 7 and 8 changed hands at low figures, but the acreage is now commanding fancy prices, with the demand extending a long way from the three producers. The producing sand in the Midway field is not uniform, and for this reason it is impossible to determine the possible producing limits of the deep zone. Shales play an important part in production and are partly responsible for the remarkably consistent action of the field over a period of years.

Union Avenue Gas

After a long and tedious operation, the Pacific-Eastern Production Company has succeeded in making a commercial gas field of the Union Avenue area. KCL 3, Section 6-30-28, which was reported last week as a four and one-half million foot gasser, is still capable of flowing at its initial rate, with no signs of a decline. The hole was originally drilled to 4446 feet and plugged back to 4415 feet for a test of 100 feet of sand. A string of 6⅝-inch casing was cemented at 4312, with two-inch tubing run almost to bottom. The casing pressure is above 800 pounds and the tubing pressure 400 pounds. Although the company was ostensibly seeking oil, a gas field near Bakersfield should prove attractive. Gas lines to connect with those leading to Los Angeles Basin cities could be laid at a nominal cost, and in addition, the possibility of increased gas consumption in San Joaquin valley cities is good. The new gas field is located in the bed of the San Joaquin valley, and while it had failed to demonstrate that oil in commercial quantities is present, it has severely jarred the old theory that little of importance should be expected of valley

leases. The area is about six miles south of the Kern River field and almost in the city of Bakersfield.

Fruitvale

The two producing wells in the Fruitvale field are still holding up toward their initial rate, proving that the area will make at least a good pumping field. Number 1, the discovery well, which is being deepened to test the deeper sands, is drilling below 4700 feet, with the formation showing little promise. The well was originally completed at 3850 feet with an initial production of 200 barrels. The oil sand extended below 4000 feet, but gradually became "leaner" after 200 feet of additional drilling. Shell's KCL 1, Section 9-29-27, is drilling past 2800 feet and is not expected to yield showings above 3500 feet. This test is located about one and one-half miles north of Pacific Eastern's producing wells. A. L. Marsten, independent operator, has located a test on Section 27-29-27, more than a mile southeast of the discovery well. The completion of these wells should give a good indication of the size and trend of the field. The characteristic field along the east side of the San Joaquin valley is small, and the Fruitvale structure is expected to be no exception. The three wells completed are located only a few hundred feet apart and it has been impossible to outline the probable producing limits from their action, each having had an almost identical initial production from a sand found at practically the same depth.

W. W. Stabler has succeeded in pulling the old 8¼-inch liner from Tejon 1, Section 23-32-29, after bailing the hole dry, and is running a new one before making another production test. Stabler recently cemented a string of 10-inch casing at 2520 feet to test about 90 feet of sand. During the original test, the well made some gas and showed oil, but sand encroachment cut short the bailing and swabbing operation.

Santa Barbara County

Any doubt as to the value of the Barnsdall-Rio Grande discovery near Elwood, Santa Barbara County, has been erased by the action of the discovery well, which is still flowing at the rate of exactly 100 barrels an hour. The tubing pressure has jumped to 400 pounds, the casing pressure to 1170 pounds, while the gravity of the oil has climbed steadily to 38.7. The field is one of perhaps 50 similar structures in California which have been drilled during the past 25 years, and of this number many have been proved. There is still a divergence of opinions concerning the value of the discovery, but even the most conservative geologists admit that the new field is much better than the majority of small producing areas in Santa Barbara and adjoining counties. Production is coming from the lower Miocene, which should produce satisfactorily in this part of the state. Some confusion has arisen, due to the comparison of the field with the Long Beach. This is brought about by the fact that both are producing from the Miocene. The very deepest production in the Long Beach field, however, is coming from the top of the upper Miocene, while the Elwood discovery well is probably flowing from the bottom of the lower Miocene. There is a slight relation between the two sands, but since they are located in widely separated areas, it is not fair to make a definite comparison. No field has ever produced more oil per acre than Long Beach and it is hardly reasonable to suppose that Elwood will accomplish the feat. The action of the well shows that it is better than an ordinary producer, but only time will prove the fact. The oil is very light, containing about 45 per cent. gasoline, and will find a ready market. The new field is about 10 miles west of Santa Barbara, on a series of cliffs above the Pacific Ocean and apparently will take an east-west course. The Barnsdall and Rio Grande are already starting another well, which is to be one of four to be drilled in accordance with the terms of the lease.

Hawthorne-Lawndale

The Smith and Berry interests have located another in the new Hawthorne-Lawndale field, the exact location being 500 feet northeast of San Clemente Oil Company's discovery well on the northeast quarter of Section 20-3-14. It is the first location since the field was discovered more than a month ago. San Clemente Oil Company's Peck 1 is still flowing at a 150-barrel rate, with production showing an increase when the well is allowed to flow freely.

It now looks as if the bulk of production in the Rincon field must come from the upper sands. The Miley Oil Company has passed 6400 feet in Hobson 1, which now is entering the doubtful class after having passed through many streaks of oil sand, none of which seemed suitable for commercial production. The original schedule called for the Lloyd zone around 6100 feet, but the formation which has produced the bulk of the oil in Ventura failed to make its appearance. Pan American Petroleum Company's Hobson Fee 1 is drilling around 5700 feet, with little more encouragement than was shown by the Miley test. The operators are still feeling around in the upper sand for dependable streaks of oil sand in which to complete their wells, being content to get what they can from the shallow zone. The field has been a distinct disappointment and certainly bears no resemblance to its nearest neighbor—Ventura.

Ventura

After a long and tedious struggle, The Associated Oil Company has completed Lloyd 100, in the Ventura field, at 7957 feet. Initial production was only 1150 barrels, but mechanical difficulties played an important part in the poor showing. The well was completed only after a difficult sidetracking job below 7000 feet. The original hole was drilled to exactly 7957, but just before completion, a part of the drilled pipe was twisted off. By cementing back several hundred feet, the company was enabled to sidetrack the junk and make a new hole to the former depth. It was the original intention to complete the well below 8000 feet, but the Associated was satisfied to finish at the depth at which the trouble started. Several wells have been completed below 7300 feet in the Long Beach field and equally as many in the Ventura field. Miley once completed a commercial well in the Athens-Rosecrans field at 7591 feet, but production declined rapidly and the producer soon passed by the wayside. The Associated's well is producing from more than 2000 feet of oil sand. Ventura has long been known as the peer of deep producing fields and Lloyd 100 seems to uphold the record.

Magnolia Has Fifth Tank Fire at Midland

Midland, Texas.—Magnolia Petroleum Company's large crude tank farm northeast of Midland on the Texas & Pacific Railroad sustained its fifth fire loss in as many months when an 80,000 barrel steel tank loaded with Crane County crude caught fire shortly before noon on August 1 from static or spontaneous combustion. Less than 1,000 barrels of oil was salvaged. This tank farm has been struck by lightning four times since March 8, when five 80's were destroyed. Total losses amount to about 750,000 barrels of crude and 10 practically new 80,000 barrel steel tanks. Gulf Production Company and Atlantic Oil Producing Company have tank farms and the same grade of crude stored on sites adjoining the Magnolia Petroleum Company, but have escaped so far without a loss.

The latest fire has aroused considerable interest among other concerns with large crude stocks on hand in the West Texas district, since the cause of the fire is somewhat of a mystery. The crude had been in the tank for eight months without being disturbed. Before daylight of the morning of the latest fire, the watchman on duty reported a cracking noise within the tank, and at the time an explosion. The tank was equipped with a modern gas tight roof, and is the first fire loss in West Texas from a tank that had such protection, although a previous fire swept a tank that was partially equipped. Flames began shooting from the base of the roof several hours before the oil contents of the tank became ignited, and could not be checked although the fire fighting equipment of Magnolia Petroleum Company, Atlantic Oil Producing Company, Gulf Production Company and the City of Midland was used.

Sun Water Shipments

Beaumont, Texas.—Water shipments of the Sun Oil Company from Sun, its crude oil terminal on the Neches River near here, during July amounted to 541,272 barrels, all being coastwise traffic.

Commission Order Limits Output Of Chalk-Roberts Field

Private agreement to shut in production superceded by umpire and committee which will prorate production under official direction

By H. H. KING
Staff Representative

FORT WORTH, Texas.—Partial release of the estimated 40,000 barrels daily production now shut in from the 2500 and 2900-foot lime horizons in the Roberts-Chalk field, located on the Howard-Glascock County line, was authorized by the Texas Railroad Commission August 4 in issuing a proration order for the deep production to become effective August 15 for a period of six months. The proration order limits the output of the deep production to 15,000 barrels daily during the first month, and 25,000 barrels daily during the following five months, with rigid restrictions placed on artificial methods of stimulating production.

Enforcement of the commission's proration order will be placed in the hands of an advisory committee of several operators, who will in turn recommend two or more capable production men to be selected from by the conservation body in appointing an umpire for the field. The advisory committee will meet shortly to set the wheels in motion towards opening up the field to 15,000 barrels daily on schedule, if an adequate pipe line outlet can be had by August 15.

The advisory committee consists of the following members: Robert T. Piner, Big Spring banker and agent for the Dora Roberts Estate, chairman; J. S. Cosden, Cosden & Company; Wm. Fleming, F-H-E Oil Company; Frank T. Pickrell, Texon Oil & Land Company; I. G. Harmon, Marland Production Company; Virgil Hicks, Owen-Sloan Company (Laurel Oil & Gas Company) and Geo. C. Matson, Schermerhorn Oil Company.

Voluntary Curtailment

A voluntary shut-in agreement has been in force throughout the deep pay area since early last February when the Owen-Sloan Company brought in the second deep producer offsetting Magnolia Petroleum Company's Dora Roberts discovery well in the 2900-foot pay. The latter two concerns initiated the plan when Magnolia Pipe Line Company was unable to take outside oil for purchase, or transportation, and other producers have fallen in line, without a single exception, for the reason that no market has been available for the oil if produced. The Coltex Refining Company, which is operating a 8000 barrel daily capacity skimming plant at Colorado, with gathering lines connecting all wells in Mitchell County, and the bulk of the shallow oil producers in Chalk field, Howard County, avoided making connections with the deep producers in the latter field because of the high sulphur content of the oil, as compared to the shallow oil in the same area.

Laying Line

Magnolia Pipe Line Company is providing facilities to handle a large amount of crude daily from the deep pay area, and is at work on laying a 12-mile six-inch line, parallel to its present four-inch carrier, extending from its Iatan mainline station on the Midland-De Leon trunk line to the Chalk field gathering station. Magnolia Petroleum Company is also adding three new 80,000 barrel steel tanks to its Iatan tank farm in the southwest quarter of Section 12, Block 30, T. & P. survey, T-1-S, Howard County and seven 55's are already erected, but practically filled with oil. Magnolia Petroleum Company produced about 225,000 barrels of deep oil production from its discovery well, before it was shut in, and the oil is in storage at Iatan. This company is to offer a limited portion of its Howard County pipe line facilities to other deep producers for the purchase of the oil at the posted price of 65c per barrel.

Shell Pipe Line Company has completed preliminary work for the prompt extension of its pipe line facilities from its McCamey-Cushing 10-inch line, which cuts across the southeast corner of Howard County, to the deep oil area, and is expected to begin laying a line immediately. Shell Pipe Line Company recently announced that about 8000 barrels daily would be purchased from the deep oil producers, if proration was put into effect.

The first independent pipe line to reach the deep oil area is to be furnished by the Big Spring Pipe Line Company, which is laying a 15-mile 4½-inch line from the field to the plant site of the Big Spring Refining Company on the west side of Big Spring. The refinery is now being erected, and a flat rate of 12½ cents per barrel will be charged for moving the oil through the Big Spring Pipe Line Company's system.

Cosden Line

Cosden & Company, which is one of the largest lease and production owners in the deep pay area, has made survey for an eight- or six-inch line to connect its properties with a 10,000 barrel skimming and cracking plant to be erected by Cosden & Company and W. D. Richardson of Tulsa on the Texas & Pacific Railroad east of Big Spring. Contracts for the erection of this plant were awarded July 14, and the completion date for the plant is set for next December or January. The Texas & Pacific Railroad has contracted for the delivery of 1,000,000 barrels of fuel oil from this plant over a long period, and is preparing to erect a large steel tank farm near the plant. Cosden & Company is also negotiating for the erection of a large tank farm to begin accumulating crude before completion of the plant.

The above four market outlets for the deep production may be supplemented later by Humble Pipe Line Company and Atlantic Pipe Line Company laying extension lines from their West Texas trunk line systems. An adequate market outlet is now assured, without the latter two entering the field.

Production Extended

Coincident with the announcement by the commission of the proration order, the deep pay area received a number of important extensions during the past seven day period. The McGinley-Sigler Company, Henshaw Oil Corporation and Lee Davis' semi-wildcat test on the S. T. Eason-Settles 120-acre lease widened the producing area nearly two miles to the west late last week with an initial flow of 60 barrels of 32.5 gravity oil per hour flowing by heads from sandy-lime at 2208-10 feet. This well is 1650 feet south and 2310 feet west of the northeast corner of Section 6, Block 32, T. & P. survey, T-2-S, and appears to be a separate area from the main field. It logged the top of the big lime at 1950 feet, with a surface elevation of 2708 feet, and showed for a good well when only 260 feet in the lime, while in the field proper most wells are carried from 400 to 900 feet into the lime formation before encountering flowing production. The production of the Eason-Settles producer was shut in pending the erection of tankage after being given a brief open flow test.

Cosden & Company extended the lower pay in the Roberts-Chalk field more than one-half mile to the north late last week when its Dora Roberts 1-A, located near the center of the south line of Section 129, which is owned entirely by the former concern, swabbed 165 barrels of oil during a five-hour test from lime at 3083-

3104 feet. Roberts 2-A in the southwest corner of the same section, was preparing to set casing and drill in early this week with 1500 feet of oil in the hole at 3120-25 feet.

Amerada Petroleum Corporation and Rycade Oil Corporation's Dora Roberts 1, located in the southwest corner of the north half of the northeast quarter of Section 137, extended the 2500-foot pay nearly one mile to the north and east with a natural flow of 40 barrels of oil per hour during the first six-hour gauge at 2490-2505 feet. This well was shut in. It logged the top of the big lime at 2115 feet, with a surface elevation of 2738 feet.

Order on Deep Stuff

The commission's Howard County proration order does not apply to the shallow producers above the 1800-foot level. It places the ban on the use of swab, other than cleaning out wells, or starting same on natural flow after completion, while air-gas lift and shooting is tabooed. These restrictions may be partially amended later, as the gas flow accompanying the oil production is negligible, and it is very doubtful if wells in the closely drilled area will flow when all are placed on production.

The unit pan is to be applied to the deep area, dividing the field into 40-acre units, which will be the regular subdivisions of a section, and only one well to each producing horizon is to be drilled on each unit, except in cases of offset drainage. This rule will have a tendency to hold back a major drilling campaign at the start, and will probably lead to a higher crude recovery by natural flow, although considerable drilling will take place shortly to establish production on each of the units in the field. The gauging of all wells in the field will be necessary to determine the average potential of each unit, and the allotment of pipe line outlet will differ from the plans now in use in Hendrick and Yates fields, since more than one producing horizon is to be reckoned with.

Commission's Order

That portion of the commission's order fixing the allowable production and how determined and apportioned, reads as follows:

"Beginning on the fifteenth day of August, 1928, and continuing for a period of six months thereafter, or until sooner changed by order of the commission, the following rules shall be in effect, controlling those wells only which are now producing or which may hereafter produce oil from lime pay formations occurring below the shallow sand formations encountered at approximately 1800 feet and above.

"Rule 1. Until further ordered by the commission the total aggregate daily maximum production of all wells governed by these rules shall not be more than 15,000 barrels during the first proration period of 30 days but shall be increased to 25,000 barrels at the beginning of the second monthly proration period and shall so continue so thereafter, provided that upon showing by the advisory committee the commission finds such increase justified.

"Rule 2. Said field shall be divided into tracts of 40 acres each, said tracts to be regular sub-divisions of a section and one well only shall be drilled thereon to each separate lime pay horizon, except where more than one well in the same such horizon is made necessary to protect leasehold or vested rights; and a permit for each such additional well shall be obtained from the commission upon application filed fully stating the facts, notice thereof having first been given to all adjacent lessees affected thereby. No well to be drilled into any lime pay formation in said field shall be located nearer than 330 feet from the boundary line of the lease on which it is to be drilled.

"Rule 3. The term 'daily potential production' as applied to any well under these rules shall mean the number of barrels of oil which such well is capable of producing in a day of 24 hours. The daily potential production of all wells shall be determined by the commission, or its agents, on the fifteenth day of August, 1928, from tests or other methods prescribed by it and such determination shall control proration hereunder until seven o'clock A. M., September 16, 1928. In like manner the daily potential production of all wells shall be determined on or immediately prior to the fifteenth day of each calendar month hereafter and such determination shall control proration hereunder until seven o'clock A. M. of the sixteenth day of the next following month.

"The term 'average potential production' as applied to any group of wells included in proration hereunder shall mean the average of the daily potential production of all such wells obtained by dividing the aggregate daily potential production of all wells in the group by the number of wells therein.

"The aggregate daily maximum production from the entire field allowed under Rule 1 or other order of the commission passed pursuant thereto, shall be allotted ratably to each separate lime pay horizon in said field in the proportion which the aggregate daily potential production of all wells producing from each such horizon bears to the aggregate daily potential production of all wells producing from all such horizons in the field. Each 40-acre tract shall, in those cases where there is but one well to a 40-acre tract producing from each horizon, be entitled to produce daily from each such horizon its ratable share of the total daily allotment to each such horizon under this rule in the proportion which the daily potential production of each well on such tract producing from such horizon bears to the aggregate daily potential production of all wells in the field producing from the same such horizon. If there be more than one well on a 40-acre tract producing from the same horizon, for the purposes of the foregoing calculation of the allotted production from the wells thereon producing from the same horizon, the average potential production of such wells shall be used instead of the aggregate daily potential production of all wells thereon, and such wells on the same tract and producing from the same horizon shall produce only their ratable share of the amount allotted to such tract from the same horizon based upon the ratio of the daily potential production of each such well to the aggregate daily potential production of all such wells. No well in the field shall produce daily more than the amount allotted to it by this rule and the amount that may be produced from each 40-acre tract shall be the aggregate of its allotments from each horizon encountered in wells thereon, and no more. Where the word horizon is used herein it shall mean a separate lime pay horizon."

National Candidates Invited to Tulsa

Tulsa. — Invitations for the leaders of the national democratic and republican tickets, and the vice presidential candidates as well, to speak in Tulsa during the International Petroleum Exposition, October 20 to 29, have been issued by the management. The candidates were assured of a huge audience and a national radio hook-up.

The management of the exposition in Tulsa impressed upon the candidates' managers, that the exhibition here was both national and international in scope. Congress and President Calvin Coolidge approved a measure in May directing the State Department and the Department of Commerce to send invitations to all foreign governments to send representatives to the exposition. Foreign oil men and oil companies have been notified particularly by the representatives of the Department of Commerce, which is world wide in scope.

The fact that Oklahoma is recognized by most political observers as one of the pivotal states in the November voting, has led the management to believe the candidates would appreciate the invitation to speak here. The exposition, also, is only a few days prior to election.

The audience here, the campaign managers were assured, will be national and international in aspect, including thousands of oil executives from the fields, large and small, in the United States and foreign countries.

An acceptance from Curtis and Robinson, the vice presidential candidates, who live in adjoining states, and who have many acquaintances here, is expected soon.

C. G. Cox, National Supply Company store manager at Winfield, Kansas, for several years, has recently been put in charge of the company's El Dorado, Kansas, store. He is succeeded in Winfield by Lee Douthitt, formerly his assistant there.

Winkler Completions Add 190,000 Barrels During Week

Eight new wells have initial more than twice prorated production of field; Yates field gauge shows nearly three million potential

By H. H. KING
Staff Representative

SAN ANGELO, Texas.—Big producers predominated among the eight new completions registered in the Hendrick field during the past week and the estimated combined initial flow of these wells was placed at 190,000 barrels. A late completion on the north end of the field by Southern Crude Oil Purchasing Company and Dixie Oil Company revives hopes of the flush oil area being carried further north since this well showed good for 12,000 barrels daily when drilled one foot into the lime to 2870 feet.

The Southern and Dixie well on the north end is located in the southwest corner of Section 28 on an 80-acre lease, while Southern and Westbrook interests hold lease on the balance of the section. Eight-inch casing was cemented at 2618 feet. The well is credited with having gauged 475 barrels during the first hour; 500 during the second hour and increased to 525 barrels per hour on the third hour gauge.

Offset Wells

Marland Oil Company's Hendrick 1-A, a west offset, was completed the middle of last month flowing 25 barrels per hour at 2945 to 2950 feet and the Winkler Oil Producing Corporation's Hendrick five-acre tract contributed a 3600 barrel well last month at 3115 to 3117 feet, thus indicating a wide difference in pay horizon on offset locations. The latter depth producers missed the upper pay although it is offsetted now on four sides by shallower producers.

Gulf Production Company's Hendrick 22, located on the north line of Section 45, gauged 1831 barrels during the first hour with 110 pounds back pressure at 2880 feet, or at the rate of 43,944 barrels daily. This well made 600 barrels hourly through drill stem at 2691 feet.

Skelly Offers Bargain

Skelly Oil Company added 65,500 barrels of new production from three new completions on its 160-acre lease in Section 40, and is offering to sell spot crude at 67½ cents loaded on buyers cars at Pecos, because of its allowable production exceeding current requirements.

Atlantic Oil Producing Company and Collett-O'Keefe's Hendrick "F" lease in Section 40 added a like amount of new production from two new completions. Roxana Petroleum Corporation and The Texas Company's Hendrick 4-C is credited with having flowed at the rate of 39,000 barrels daily and their Cowden 2-A, located on the south end of the field, made 200 barrels per hour, showing 85 per cent water at 3052 feet.

Yates Potential

Estimated potential production of the Yates field was placed at 2,997,252 barrels from 242 wells on August 1, according to figures released by Umpire Ray Richmond and W. A. Moncrief, chairman of the advisory committee. Only 36 wells were re-gauged while the July 1 figures were used in determining the potential of the other wells. The field is now credited with having 127½ units of 100 acres each on production, thus giving the field 12,750 acres of land on production.

The allowable production during August will remain at 65,000 barrels daily.

The natural flow of the Deep Rock Oil Company and Grisham-Hunter Corporation's wildcat test on the Bettis land, which was reported last week as opening a new shallow pool in southeastern Culbertson County and 50 miles from the nearest oil production, quit after putting about 300 barrels of 36.8 gravity oil in the tanks from sand and anhydrite at 1483-95 feet. The well flowed about 52 heads of oil before quitting and late reports credit it with having several hundred feet of oil in the hole while preparing to pump. Although this wildcat strike appears to be a flash proposition, it indicates that the chances are good for commercial production to be trapped against the numerous faults known to exist in the district, and a general revival of wildcat activity is anticipated. The oil is free of sulphur content.

HENDRICK FIELD OPERATIONS

The status of operations in the Hendrick field, West Texas district, at the close of last week is shown below by companies:

Company	Locations and Rigs	Drilling Tests	Tests in Big Lime	Completed Wells	Initial Produc'n	Average Produc'n
Amerada Petroleum Corp.	..	..	1	..	.....	.....
Arizona Mining & Eng. Co.	..	..	1	..	.....	.....
Atlantic Oil Producing Co.	2	2	3	21	106,810	*11,820
Atlantic-Collett-O'Keefe	1	..	2	9	127,000	*11,640
Atlantic-Kessler-Logan	..	..	..	1	2,500	*540
The California Company	..	..	..	8	7,550	1,860
Cranfill & Reynolds, Inc.	..	1	1	6	53,825	*7,095
Eastland Oil Company	..	..	1	..	.....	.....
El Paso Production Co.	1	..	..	..	.....	.....
Gulf Production Co.	..	5	7	17	114,310	*11,350
Humble Oil & Refining Co.	5	..	..	30	93,070	*13,555
Independent Oil & Gas Co.	..	1	5	15	61,220	*5,235
Magnolia Petroleum Co.	..	..	..	8	12,335	1,360
Marland Production Co.	1	1	1	5	44,300	*3,550
May Production Co.	..	1	..	..	.....	.....
Murchison-Cranfill Bros. Oil Co.	1	1	2	6	12,675	*3,060
Clint W. Murchison et al	..	..	1	..	.....	.....
Prairie Oil & Gas Co.	..	1	2	3	39,000	*3,085
Pure Oil Company	3	3	6	19	80,785	*14,590
Republic Production Company	..	..	7	8	23,510	*6,765
Roxana Petroleum Corp.	..	2	6	27	178,980	*22,130
Roxana & The Texas Co.	1	7	12	19	129,415	*15,975
Skelly Oil Company	..	..	5	8	115,300	*6,200
Southern Crude-Dixie Oil Co.	3	3	9	21	46,165	*7,180
So. Crude-R. A. Westbrook	9	10	18	32	106,080	*23,340
Texon Oil & Land Co.	1	..	5	6	25,275	*5,375
Winkler Oil Prod. Corp.	..	..	..	1	3,600	*220
Total	28	38	95	270	1,371,065	174,275
Total previous week	31	39	96	262	1,180,505	185,400

*Production partially pinched.

Mounting Production Forces Wilbarger Proration

WICHITA FALLS, Texas.—A sample of conditions that have existed for months in the Greater Seminole and West Texas districts is being experienced on a small scale by producers in the Grayback flush area in the South Vernon district, Wilbarger County, with temporary proration of pipe line runs and erection of large steel tankage being forced on some of the operators. Prolific sands and sandy-lime horizons uncovered recently on the W. T. Waggoner ranch, centering on and around Section 24, Block 4, H. & T. C. Survey of the Grayback pool, have boosted the crude output of Wilbarger County to a new peak of 35,000 barrels daily average for the past week, with about one-third of this amount shut in for storage on the Waggoner Refining Company, Fain-McGaha Oil Corporation, The Texas Company, Barkley-Meadows and Phillips Petroleum Company leases.

The increased output of Wilbarger County last week placed the North Texas district at the highest mark reached within the past 14 months, with the district averaging 105,110 barrels daily for the past week. Wilbarger County now ranks in fifth place on crude production within the state, being exceeded only by Winkler, Pecos, Crane and Jefferson Counties.

The Waggoner Refining Company, which is owned by the W. T. Waggoner Estate and operates a refinery at Electra, with gathering lines extending throughout the ranch property in Wilbarger and Wichita Counties, has been the most successful in building up big production lately, and also has been restricted the most on pipe line outlet. This concern has placed orders for two 55,000 and a like number of 80,000 barrel steel tanks to be erected immediately in Wilbarger County to obtain relief from over-production, after having failed to work out a satisfactory market outlet with the major pipe line companies in the district.

Wells Average 2766 Barrels

The Waggoner Refining Company's Waggoner "H" 40-acre lease, consisting of the northeast quarter of the northwest quarter of Section 24, Block 4, H. & T. C. Survey, has registered a combined initial flow of 16,600 barrels of new production from the first six wells drilled in, or an average initial flow of 2766 barrels per well. These wells are producing from broken pay averaging about 2280-2300 and 2400-15 feet in depth, and during the past week four new producers were added ranging from 2200 to 2500 barrels initial flow. These completions are located on the north and west side of the lease, and indications that the southeast corner will also prove to be equally as prolific are taken from the performance of Fain-McGaha Oil Corporation's Waggoner 12-S, which was reported last week as having made a natural flow of 185 barrels per hour at 2300-11 and 2398-2435 feet. This well had to be pinched to less than one-half its potential flow for lack of tankage.

The W. T. Waggoner Estate is in control of the water supply for the field, and in order to force operators to retard drilling while an over-production exists, notice was given the operators some weeks ago that their water supply would be cut off if unnecessary wells are completed. The Waggoner Estate is enforcing this rule, although the bulk of its lease contracts specify that lessee must start a new test within 60 days after the completion of a well until the leases are drilled up. Further sale of leases and drilling blocks on the Waggoner ranch in the Wilbarger County flush area is reported to have been checked until about January 1, 1929, by R. L. More, who has active charge of the Estate.

Contract Balks Lines

Major pipe line companies have been reluctant to enlarge their transportation facilities out of Wilbarger County to accommodate the sudden flush crude output on the Waggoner ranch, since the Waggoner Estate reserves the right of refusal to all oil and gas produced on its fee lands at the posted price. Pipe line runs from Wilbarger County during the past week averaged 35,000 barrels daily, and were distributed as follows: The Texas Pipe Line Company 14,920 barrels; Humble Pipe Line Company 13,500 barrels; Waggoner Refining Company 5,950 barrels and the Sinclair Pipe Line Company 630 barrels. The main lines of these carriers do not touch the Grayback flush area, and connections have been made by small extensions from the original South Vernon district.

New Shallow Pool

W. M. Langee and associates uncovered a new shallow high gravity oil pool in North Young County last week through the successful completion of their wildcat test on the V. Swain-W. C. Robinson land with an initial production of 40 barrels of oil and 15 barrels of water on the pump from sand at 714-19 feet. This wildcat has a surface elevation of 1203 feet, and is several miles from production. It is located in the northeast corner of the west 100-acres of the north one-half of Section 1466, T. E. & L. survey, and due north of Jean.

In Haskell County, Mrs. Lillian Hill and associates' wildcat test on the M. B. Proctor land, A. Rodriguez survey, Abstract 350, is cleaning out to deepen with a flow of about four million cubic feet of dry gas at 1627-32 feet. This gasser is in the southeast part of the county, and in a section that has contributed small gassers before.

Award Contract for New Helium Plant

Washington — Awarding of a general contract for the erection of the buildings and other structures for the government's new helium production plant near Amarillo, Texas, to James T. Taylor of Fort Worth, is announced by the United States Bureau of Mines, which will have supervision over the project. Time for completion of the plant called for under the contract is 75 days.

The plant site is located near the town site of Soncy, about six and a half miles west of the city of Amarillo. The site comprises 18½ acres of land, lying between Federal Highway No. 66 and the Chicago, Rock Island and Gulf Railroad, and was donated for the project by W. H. Bush. Arrangements have been made with the Rock Island for railroad service including the construction of an industrial side track for the plant.

In designing the plant buildings the aim has been to provide structures that would be substantial, serviceable and adapted to future expansion at the lowest possible cost. The buildings that will house the more important parts of the equipment will be steel framed, while others will be of mill type timber framing. Walls in the more important buildings will be of hollow tile construction and other buildings will be walled with corrugated fireproof sheeting. The mechanical equipment of the plant will consist primarily of gas engines, gas compressors and apparatus for low temperature liquification of gas. Some of the equipment will be provided by moving spare units from the U. S. helium production plant at Fort Worth, and other parts will be new.

In addition to the general contract, awards have been made to the C. & G. Copper Company of Mt. Vernon, Ohio, for compressors; to the Chicago Bridge & Iron Company for gas holders and water tank; to D. J. & W. D. Muncy of Amarillo, for the drilling and equipping of water wells and to the Texas Cyclone Fence Company for fencing the plant site. The contracts were all let under sealed competitive bids, and award being made to the lowest bidder in each case.

Helium-bearing natural gas for the

COMPLETE ENGINEERING CONTROL of fabrication

The selection, specification and testing of steel; the design, fabrication and testing of the pipe is under the direct control of the Smith engineering organization that developed and perfected the SMITHWelding process and its application to the making of Smith Pipe.

Co-operation with Pipe Line Engineers

This organized engineering talent is always available to co-operate with the pipe line engineers of our customers on any matters that arise on the use of pipe in oil and gas transportation.

A. O. SMITH CORPORATION
Oil & Gas Field Products Division
General Offices: Milwaukee, Wisconsin
District Offices at New York, Pittsburgh, Tulsa, Houston, Los Angeles

SMITHSTEEL
GAS LINE PIPE

plant will be furnished, under a contract between the Amarillo Oil Company and the government, from the Cliffside structure lying to the northwest of Amarillo. Most of the land on this structure is leased by the Amarillo Oil Company from the fee owners, W. H. Bush, Lee Bivins and the Fuqua Land and Cattle Company. The pipe line to bring the gas from the wells to the helium plant is now being constructed by the Amarillo Oil Company.

Since the contract between the Amarillo Oil Company and the government was executed, the company has completed a gas well, which extends the proven area of the structure about one mile to the northeast of the wells previously completed. This new well came in with an open flow volume of 7,100,000 cubic feet per day and a rock pressure of 725 pounds per square inch. The helium content of the gas is as high as that from other wells on the structure. A well, lying to the southeast of the existing wells, is now being drilled.

Production Engineering Meeting at Galveston

Dallas, Texas.—Preliminary program for the meeting of the Texas-Louisiana-Arkansas district of the American Petroleum Institute Division of Development and Production Engineering to be held at Galveston, has been issued by the Institute office here. The meeting is to be held at the Galvez Hotel on September 5 and 6. W. H. Meier is chairman of the program committee.

The program arranged includes a number of papers of special interest and the meeting will also largely be devoted to selecting the various subjects for national study as suggested by the national committees on drilling and production practices of the Institute. An effort is being made by the committee to secure a large attendance of field men and engineers.

A special entertainment committee has been appointed from members of the South Texas district to arrange for special events, golf prizes, etc.

Amarillo, Texas.—Skelly Oil Company's third test for oil production on the Armstrong & Byrd wildcat block on the Moore-Hutchinson County line was completed last week swabbing 620 barrels of oil during the first 24 hours from sandy-lime pay at 3172-90 feet. This well is located in J. N. Proctor survey, and about 1000 feet southeast of the Armstrong & Byrd discovery well, which was completed by Skelly Oil Company last November with an initial production of 200 barrels daily. Skelly Oil Company's Armstrong & Byrd 2 was drilled on the Hutchinson County side of the block, and failed to make an oil producer, although it was completed last May as a seven million cubic foot gasser at 3015-50 feet, with at total depth of 3527 feet. Prairie Pipe Line Company built a six-inch line from Hutchinson County to this producing area early last spring.

Flow From Texon Well 8230 Feet Deep

Fort Worth, Texas.—Texon Oil & Land Company's University 1-B, which is the deepest test in the world and located in the Big Lake field, West Texas district, made a flow of about 100 barrels of 41° gravity clean oil on the night of August third at a total depth of 8230 feet. A special wire line is being manufactured to resume drilling on this well shortly, as it has been shut down since the rig burned late last April. The well has been making heads of oil at long intervals since the fire, and fills up with oil in short order.

United North and South Development Company, discoverers of the Luling field, located in Southwest Texas, is reported to have ordered drilling discontinued on its two deep tests in the Luling field after having spent in excess of $1,000,000 in search of a deep pay. The company's Kelly 1 reached a depth of 7859 feet, and Tiller 1 was carried to 7504 feet. Both tests were in a hard schist formation, which was penetrated nearly one mile on each.

Finally Abandon Deep Tests Near Luling

Houston. — The two deep tests of the United North & South Development Company in the Luling field, Caldwell County, have been abandoned as dry holes. They are not the deepest wells ever drilled, but they are among the deepest—and among the most expensive. Kelly 1 had reached a total depth of 7859 feet and Tiller 2 went down to 7504 feet; and the going was a slow and long-drawn out process in each case, for both tests drilled into schist around 4700 feet, and stayed in solid and unbroken schist from there on down, being still in that formation when abandoned.

In point of drilling time, the tests are probably unprecedented. Kelly 1 had its fourth birthday about July 1, having been started on that date in 1924. Tiller 2 was drilling for over three years.

Exactly one year ago the Kelly 1 was drilling at 7100 feet. During the year, therefore, it was drilled 759 feet, an average of around two feet per day—with three shifts of five men each on the job. During the same time Tiller 2 was drilled from 6575 feet, a total of 930 feet for the year. At this date last year the Kelly 1 was pointed to as the deepest test ever drilled in Texas. It no longer has that distinction, for in Reagan County, Texon Oil & Land Company's University 1-B has attained a depth of 8235 feet.

The United North & South Development Company, of which Edgar B. Davis is president, is the concern which drilled the discovery well in the Luling field, obtaining production there in the Edwards lime around 2100 feet, and subsequently taking millions of dollars worth of oil out of the field. Later the United North & South Oil Company sold Magnolia Petroleum Company its holdings, consisting of the greater part of the field, the consideration being around $6,000,000 in cash and an equal amount to be paid from oil when and if produced. By the terms of the deal, however, United North & South Oil Company retained the right to all production below 3000 feet.

The deep tests are among the Edwards lime producers of the field. Tiller 2 is about 700 feet northeast of Magnolia's Tiller 10, and about one mile north of Star Town, a village outside Luling. Kelly 1 is one and one-half miles northeast of the Tiller 2, and is about 1000 feet from a producer, Magnolia's Byrd 3.

The tests were drilled with rotary tools; the derricks in each case are 148 feet high.

PERSONAL ITEMS

Arthur Fidel, brother of A. G. Fidel, purchasing agent for Midwest Refining Company, was killed in an explosion at an oil well in the Salt Creek field last week.

Edwin Carlson, geologist and land man for White Eagle Oil & Refining Company, Wichita, left early in August for a two weeks' vacation in the Great Lakes country.

Larry Oles, district geologist for Prairie Oil & Gas Company in the Texas Panhandle, Amarillo headquarters, spent several days in Tulsa last week while en route to Minnesota, where he will spend his vacation.

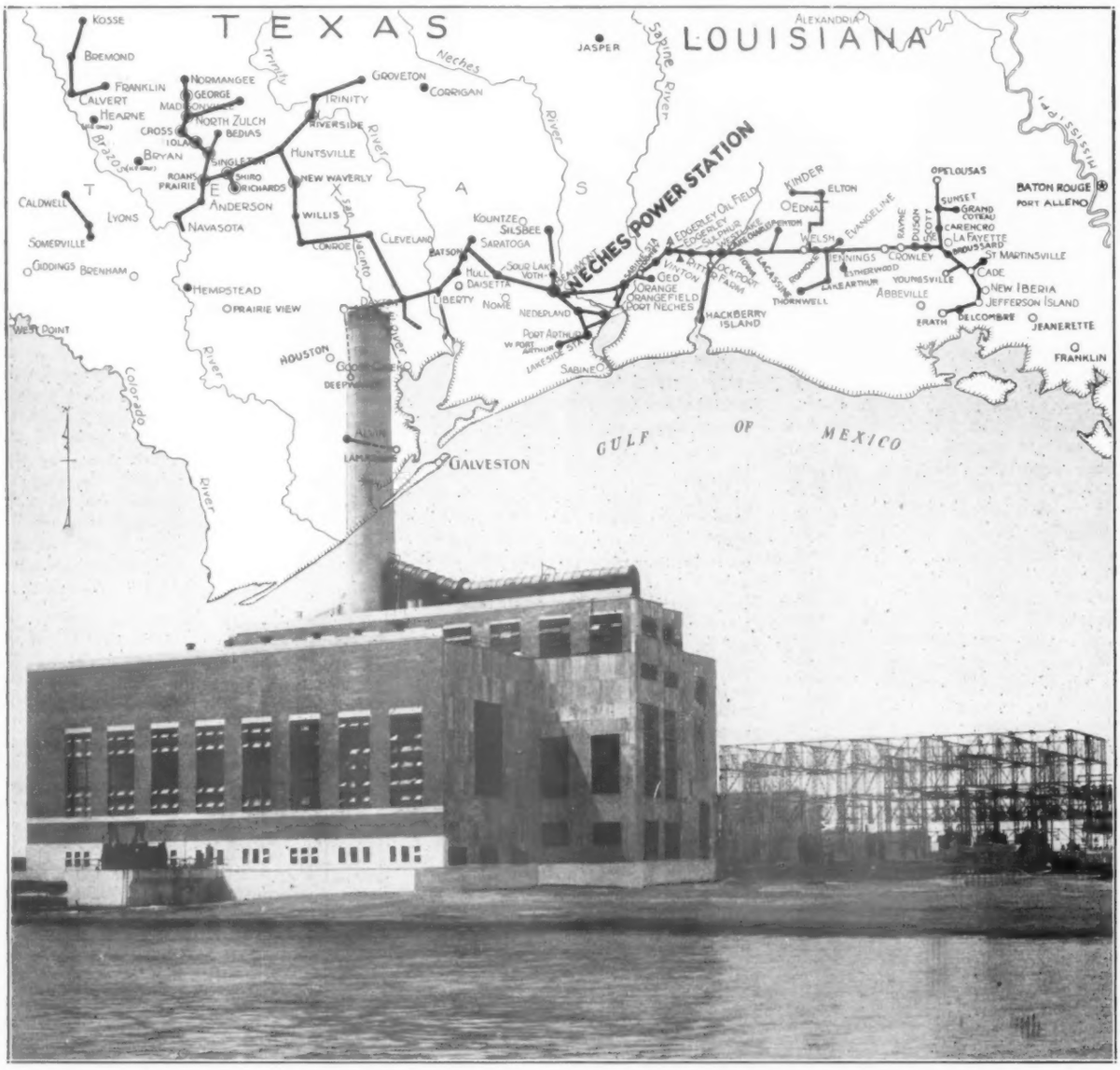
W. R. Thawley, chief scout for Gypsy Oil Company, has been in Washington, D. C., for the past two weeks, vacationing around his old hunting grounds.

Earl Simpson of Roxana Petroleum Corporation's production department in Tulsa, left for the Ozark Mountains of Arkansas, August 4, for a vacation of two weeks.

C. A. Akin, driller for the Rycade Oil Corporation, has been transferred from the Eagle Pass section to Nash Dome. He was one of the drillers of Rycade's Fee 2, discovery well at Bayou Boullion, St. Martin Parish, Louisiana.

Thomas G. Laney, petroleum engineer, is now with the Natural Gas Equipment Company, Tulsa branch office. Mr. Laney comes to the Natural Gas Equipment Company from the Fisher Governor Company where he held the position of research engineer. Prior to that time Mr. Laney will be remembered in his connection with Smith Separator Company. In his new connection Mr. Laney will engage in the working out of problems of operation and sensitive regulating and control for the oil industry.

NOTE: More than three score oil companies in Texas and Louisiana receive electric power for use in field, pipe line and refinery from the Neches Power Station—one of the greatest generating stations in the Southwest.



AN INVITATION

The next time you are in the vicinity, make it a point to visit Neches Station. Be our guest on a tour of this most modern power plant located on the Neches river a few miles below Beaumont. See for yourself the big turbo-generators which produce electric power—the accepted power—for the oil industry in the Gulf Coast.

We invite you to call upon our petroleum specialists for any assistance in the application of electric power to any phase of the petroleum industry.

Gulf States Utilities Co.-Western Public Service Co.

Under Executive Management of STONE & WEBSTER, INC.
General Offices: BEAUMONT, TEXAS

Deep Well at Jennings Holding Original Flow

By JACK LOGAN
Staff Representative

HOUSTON.—The most important of the new developments in the Gulf Coast during the past week were in South Louisiana. The activity in that section included the completion of two tests in each of two new fields, Bayou Boullion and Kelso Bayou, and one at Sorrento, in addition to several completions in the older fields. The Jennings or Evangeline field, Acadia Parish, also continues to hold the attention, as Colonel E. F. Simms' new deep producer there is still flowing 500 to 700 barrels of pipe line oil a day, with the production partially pinched. That well, Cockrell 1, was completed over a week ago at 3839 feet as the discovery well of deep pay in the field; it is in the northwest side of the field. Another Clement 1, well is being drilled by Colonel Simms at a point 1500 feet northeast of the Cockrell, and early this week it was drilling sand and shale at 3750 feet. Simms has also made location for Clement 2, to be drilled east of the discovery well. Several other locations have been made in the vicinity, including one by the Port City Oil Company and one by the Gulf Refining Company, but the drilling of those locations is being held up pending further performance of the new Simms producer.

In the Bayou Boullion field, St. Martin Parish, which was opened for production the past spring by Rycade Oil Corporation, the two completions above referred to were Rycade Oil Corporation's Bayou Boullion 2 and Bayou Boullion 1. Bayou Boullion 2 is swabbing 70 barrels pipe line oil a day, with the bottom of the hole at 3230 feet; and Bayou Boullion 1 was abandoned in salt at 3809 feet. Bayou Boullion 1 is about one mile south of the discovery well, Fee 2. Bayou Boullion 2 is about 300 feet east of the discovery well. Fee 2 is still pumping and flowing around 700 barrels a day. Other operations of the Rycade Oil Corporation in that field include the Bayou Boullion 3, 700 feet west of Fee 2, rigging up; State 1, in the Atchafalaya River offsetting the discovery well, which set screen at 2850 feet, tested, swabbed salt water, and is now pulling to deepen; and the Martin 1, across the river, one mile southwest of the discovery well, drilling sand at 3905 feet.

Gulf Refining Company of Louisiana has abandoned its United Lands Company 8 at Sorrento Dome, Ascension Parish, east of the Mississippi River, having failed to obtain production in the cap rock after drilling to 2030 feet.

Location has been made for United Lands Company 9 at a point 700 feet due west of the No. 8.

In the Kelso Bayou or East Hackberry field, Cameron Parish, Calcasieu Oil Company, Magnolia Petroleum Company and Union Sulphur Company completed two tests during the past week. Watkins 7 was completed on August 3 at 3920 feet for an initial flow of 1500 barrels; and Watkins 6 was abandoned at 4186 feet.

Pure Oil Company has made location for a new test at Sweet Lake, Sweet Lake 6. It is 500 feet east of the southwest corner on the south line of Section 12-13s-8w. Pure Oil Company's Sweet Lake 5, newest and best well of the field, was still flowing around 3700 barrels net oil daily early this week. This well in less than 70 days has produced over a quarter of a million barrels of oil. In addition to being an unusually good well, it is an unusually deep one, the bottom of the hole being at 5718 feet. The well is located in the middle of a fresh water lake about two miles in diameter. Pure Oil Company's Sweet Lake 3 in the same field is fishing at 6392 feet, and the Sweet Lake 4 which has been a producer at 5924 feet is being worked over.

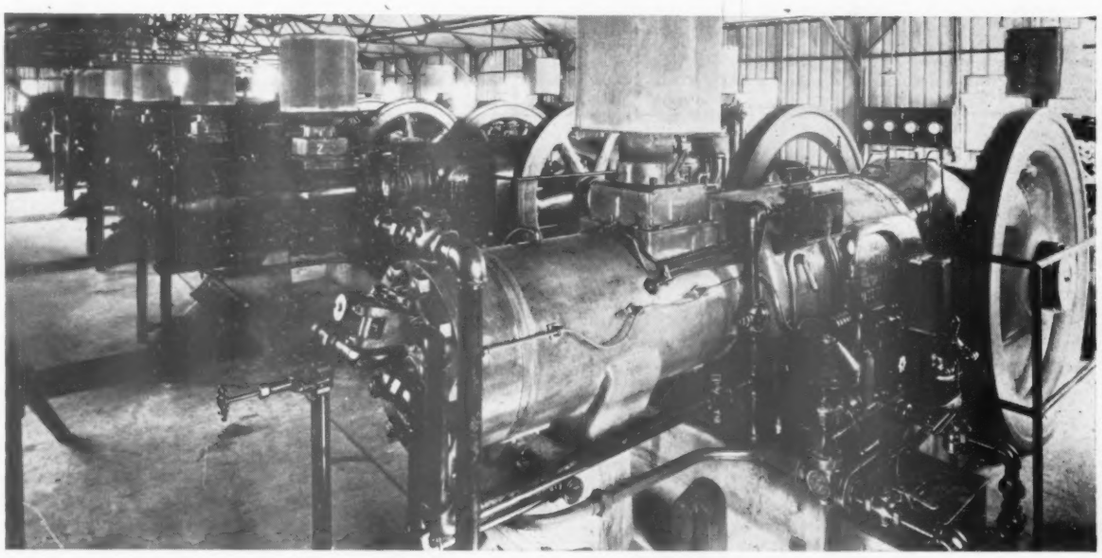
In the Sulphur field, Calcasieu Parish, Union Sulphur Company, sole owner and operator, has three tests down at depths as great as or greater than the deepest of the producers thus far drilled there. Fee 728 is drilling sandy shale at 4740 feet; Fee 730 is drilling gumbo at 4350 feet; and the Kelly 1 is down to 3922 feet in gumbo. The producers that have been drilled in the field have ranged from 3200 to 4000 feet. The field is now producing around 4000 barrels per day.

In the older fields of South Louisiana there were three completions during the week. Gilmer Oil Company's Fairchilds 1 at Edgerly has been abandoned at 2490 feet. Vinton Petroleum Company's Harmony 16 at Vinton encountered salt water at 2580 feet and is shut down; and Cline, Smith & Cline's Lucey Wilson 3, after drilling deeper, was completed at 1850 feet pumping 10 barrels of oil and 100 barrels of salt water.

Average daily production of all fields in the Louisiana Gulf Coast during the week was 28,200 barrels, as against 26,750 barrels for the previous week, the difference being accounted for by the new wells at Evangeline and East Hackberry.

Perhaps the most important completion in the Texas division of the Gulf Coast during the week was The Texas Company's Pickett 2 at South Liberty. It came in on August 3 making 230 barrels of pipe line oil from 3536 feet, and is still making about the same. This is the most northwesterly well in the field, being in that extension of the field which was proven for production early this year by The Texas Company's Green 1. Several tests drilled by The Texas Company and other operators immediately south and southwest of the Green 1 encountered cap rock and were dry; but the Pickett 2 is farther north, more off the edge of the dome; and it is considered altogether likely that worth-while production may be developed in its vicinity. The Texas Company controls all acreage within a considerable radius from Pickett 2.

In the proven fields of the Texas Gulf Coast more than the usual amount of new oil was added during the week through the completion of nine tests, including seven producers with a combined initial production of 3490 barrels. The largest of the seven producers was Navarro Oil Company's Hausler 1 at Big Creek, which came in for 1200 barrels at 3225 feet; and there were two other large wells; Smith et al's Parsons 3 at Pierce Junction, which came in flowing 1200 barrels, 15 per cent salt water at 4725 feet; and the Moody Corporation's West-Schenck 1 at Blue Ridge, completed for 1000 barrels, four per cent b. s. and water, at 2980 feet. At Goose Creek Humble Oil & Refining Company's Gaillard-Penn 30, which had been drilled deeper to 4320 feet, was brought in on air making 200 barrels, 30 per cent b. s. and water. Rio Bravo Oil Company's Jardit 80 at Saratoga was completed at 1200 feet as a pumper making 150 barrels, 80 per cent water. At Sour Lake the Lake Graham Oil Company completed Bashara 17, an old well deepened to 2165 feet, as a pumper making 50 barrels of oil. In the Spindle Top field Gulf Production Company's Gladys 228, deepened to 800 feet, pumped 130 barrels oil initial together with 70 barrels of water. Ada Belle Oil Company's Honeymoon 120 began pumping 20 barrels of oil at 500 feet. The two abandonments in the Texas Gulf Coast for the week included Orange Petroleum Company's Chesson 12 at Orange, depth 4280 feet, shut down after encountering salt water; and the Moody Corporation's Settegast B-2 at Pierce Junction, abandoned at 5650 feet.



CLARK "SUPER 2" COMPRESSORS

Use ⅓ Less Fuel Than Ordinary 2-Cycle Compressors

The CLARK "Super 2" Compressor—which is our regular 2-cycle compressor improved in many particulars—operates on 1/3 less fuel than the ordinary 2-cycle. This important fuel economy is gained through better mixing of air and gas, because of higher turbulence in the combustion chamber, together with the elimination of loss of gas into the exhaust. The "Super 2" uses no more fuel than the most efficient 4-cycle compressor because there is no loss of gas into the exhaust, and heat losses are less due to the smaller combustion chamber.

The super-charging effect of the Clark Fuel Injector enables the "Super 2" to develop more power for the size of the cylinder. After the cylinder has been completely filled with air, this Fuel Injector adds the necessary amount of gas under pressure, thus increasing the effective volume of the cylinder by 10% to 15%.

All the simplicity of 2-cycle design is retained in the "Super 2", which means a minimum of skilled labor required for operation and maintenance. The CLARK "Super 2" Compressor is made in 90 H.P. Single Type as illustrated, and in 180 H.P. Twin.

Clark Bros. Co., Olean, N. Y. Branches and Wareshouses: 125 W. First St., Tulsa. McCamey and Sweetwater, Texas, and Artesia, N. M. California: Smith, Booth, Usher Co., 228 S. Central Ave., Los Angeles, and 50 Freemont St., San Francisco.

Clark Bros. Co. OLEAN, N.Y.

CLARK

Say you saw it in The OIL WEEKLY

Mountain States Field Development Notes

Continental Will Lay Line To Pondera Field

Great Falls, Mont. — Continental Development Company has completed another producer in the Pondera field, Gjullin 2, Section 15-27-4w, at a total depth of 2010 feet with an initial production of 300 barrels. This well is a gusher and flowed over the top four times before it was controlled. It had a production of 3,000,000 cubic feet of gas at 1974 feet which developed into oil upon drilling into the sand. The well is a northeast offset to the company's first producer.

California Petroleum Corporation has announced that it will lay a pipe line from the field to Conrad, a distance of about eight miles. There is already one pipe line to the field completed, and waiting only for the tankage to be put in use, which is that constructed by the Texas-Pacific Coal & Oil Company. The California Production Company is a subsidiary of the Texas Corporation.

Majors Active in Wildcat Work in Mountains

Casper, Wyo.—The Western and Southwestern Wyoming, Eastern and Southeastern Idaho are attracting the wildcat activities of major operators in the Rocky Mountain region this summer. California Company has one operation in Idaho on Meadow Creek structure, which is drilling below 1000 feet in extremely hard formation, Section 33-3n-41e. East of this well, in Wyoming, Section 36-37-117, the Midwest Refining Company has spotted location for a wildcat well to be drilled this summer. The country is extremely rough, and is just now being surveyed by government crews. Midwest is spending $20,000 on roads, and has appropriated $175,000 for the test.

A party of California Company officials visited Idaho Falls recently, including W. H. Burg, vice president of the Standard Oil Company of California; E. G. Lawson, A. S. Palmer, F. A. Davies and D. F. Martin.

In Idaho the Ammon and Hall Creek structures are being examined by George R. Mansfield of the U. S. Geological Survey. A number of important operators are securing protection acreage throughout this region.

In Southwestern Wyoming the California Company is drilling two tests, one on South Piney structure in Uinta County, Section 7-17n-116w, which is bottomed around 1395 feet, and another in Sublette County, Wyss 1, Section 12-32n-115w, which has just started and is now drilling around 100 feet. Midwest Refining Company is drilling a test on Waterfall structure, eight miles northeast of Kemmerer, Section 35-22-115, in Lincoln County.

The theory on which all of the various structures in this territory are being tested is that they are all inter-related because of the vast general uplift extending from that territory north of Gray's Lake south through Wyoming into Utah and Colorado.

For the last year Texas Production Company has attempted to drill a wildcat well on Sweetwater structure in Utah, 60 miles south of Green River, but a stubborn fishing jos has finally forced the abandonment of the well. Now it is announced that the first well will be used for a water well and that a second test will be drilled. Heretofore it has been necessary to pipe water nine miles to the operation.

Kevin-Sunburst

Great Falls, Mont. — Most interesting development in the Kevin-Sunburst field last week was the behavior of the California Company's Lorenson 16 which has been a completed well since October, 1917. Its initial production was 1500 barrels, and since its completion it has been one of the most erratic wells in the field. At times it has "broken loose", and flowed about 1500 to 1600 barrels per day, gradually declining to 900 barrels where it remains for several months, until rods and tubing are pulled and the well cleaned out. Recently it was again cleaned out, and again it "brooke loose," and again flowed 1500 barrels per day. When this well was first drilled in the oil rose only 900 feet or so in the hole, but swabbing increased it to 1500 barrels. Now the company's Lorenson 17 is completed; it was drilled to 1614 feet and is plugged back to the top of the lime previously tested. Interesting developments are expected.

Big Muddy

Casper, Wyo.—Carter Oil Company is drilling another gas well in the Billy Creek field, Section 20-48-82, with rotary equipment. The Billy Creek gas field is being developed with the idea of furnishing gas for a line to be laid to Sheridan, or perhaps one to connect at Salt Creek with the gas line which supplies Casper.

Tisdale Dome

Casper, Wyo. — Another well is to be drilled on the Tisdale Dome structure, northwest of the Salt Creek Oil field. The Loftin Oil Company of Wyoming, recently organized in Nevada, is the operator. C. C. Loftin of Long Beach, California, heads the organization. The well will be a rotary test, and is to be located southeast of the shallow production secured some years ago.

Empire Rewards Men For Suggestions

Bartlesville, Oklahoma.—With a total of 143 rewarded employe suggestions, the Empire Companies have just closed the second year of operation of their new suggestions plans whereby employes are given monetary awards for submitting suggestions or ideas designed to facilitate operation or effect economies in the companies' business.

Coincident with the close of the second year, the new suggestions committee announces yearly award winners. These awards are $100 for the best suggestion of the year, $75 for the next best and $50 for the third best.

Three men divided first money this year. J. J. Twohig, an employe of the Gainesville, Texas, refinery of the Empire Oil & Refining Company, and A. M. Williams and H. J. Briggs of the surplus materials department of the engineering and construction division submitted almost identically the same ideas at almost the same time. Twohig worked alone and Williams and Briggs together on the plan which provides for the use of natural gas instead of acetylene gas in cutting torches. Their suggestions varied only in the details of the plan.

Second prize went to an office worker—S. M. Sweeney of the cash and securities department at the headquarters offices in Bartlesville. Sweeney's suggestion eliminated a set of check registers and greatly facilitated bookkeeping methods.

Third prize went to A. M. Billenwilliams, employe of the oil production division, at Augusta, Kansas. Billenwilliams suggested a new tubing line tie chain which not only saves operating time but also reduces accident hazards.

Suggestions are rewarded on acceptance, through a system of quarterly divisional awards and the yearly prizes. These prizes range upwards from $5.

Santa Fe, N. M.—Next monthly auction of oil and gas leases on State lands will be held here August 10; it will be in charge of B. F. Pankey, State Land Commissioner, and is expected to break all preceding records. Largest receipts heretofore collected at a monthly sale was $28,000. This month's sale will be of 37 tracts containing 10,989 acres. One tract is in San Juan County; the others are in Eddy and Lea Counties.

Thermopolis, Wyo.—The Utah Oil Refining Company will not place the wells in the Black Mountain field east of here on production until a market is available.

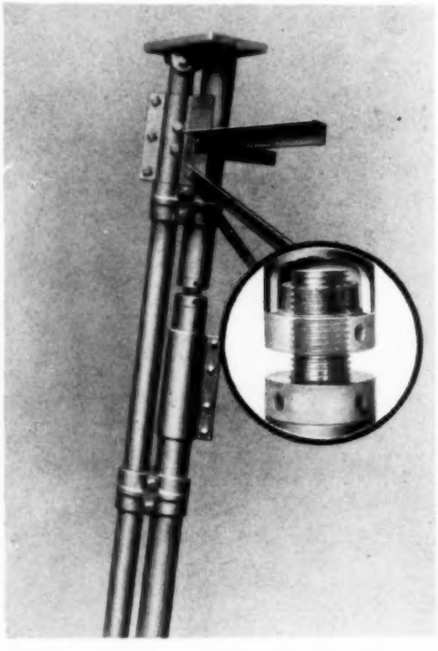
DEFIES
ABUSE
The Moore
CHAMPION

The Moore CHAMPION
a super derrick

Conquers the Giants in the Oil Country

THE carelessness of men, the force of the elements and the hazards of drilling are all weapons of the *Giant of Abuse.* Whether it be natural or accidental, a derrick receives a tremendous amount of rough treatment. For this, the stamina of the Moore Champion Derrick is more than a match.

The application of Moore reinforcing legs, to give added strength to drilling derricks, is easily and economically made.



Releg sections are joined by a clamp which is bolted over the joint. Specially designed separator castings hold the releg column firmly to the derrick leg.

The load between the derrick leg and the releg is equalized by the Moore Screw Jack (illustrated). It is inserted under the top section of each releg and tightened until there is a solid bearing between the releg and the water table. A fourteen-inch clamp, placed over the jack, prevents change of adjustment.

Four-inch, 15-pound welded relegs add 232,000 pounds capacity; four-inch, 15-pound seamless relegs add 300,000 pounds capacity. Moore relegs are integral parts of the derrick when attached, but may be removed with ease when the added strength is not required.

Lee C. Moore and Company, Inc., Pittsburgh · · Tulsa

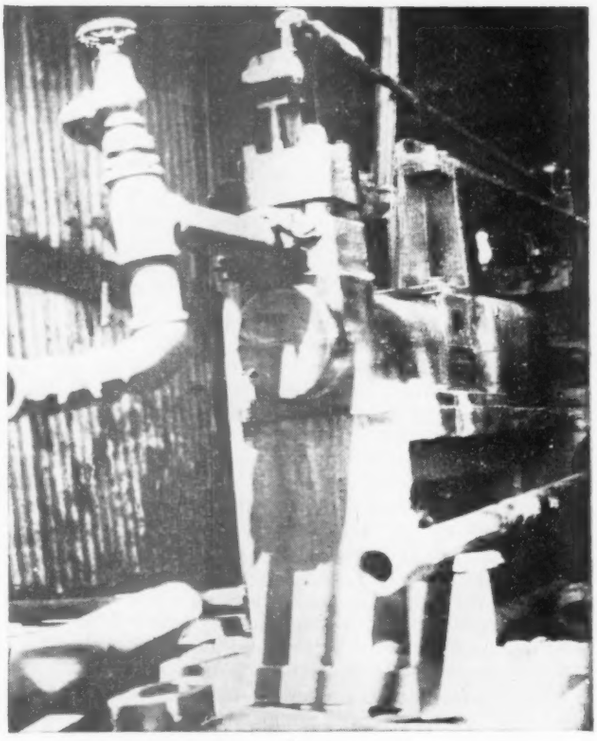
ESTABLISHED 1907

New York Offices: Oilfield Equipment Company
30 Church St., New York, N. Y.

DALLAS, TEXAS · HOUSTON, TEXAS · WICHITA, KANSAS
PARKERSBURG, W. Va. · CASPER, WYO. · SHREVEPORT, LA.

Stocks in all Principal Fields

Hook-up of the rodless pump, showing water line on left and oil line on right.



The jack for operating the rodless pump before being connected.

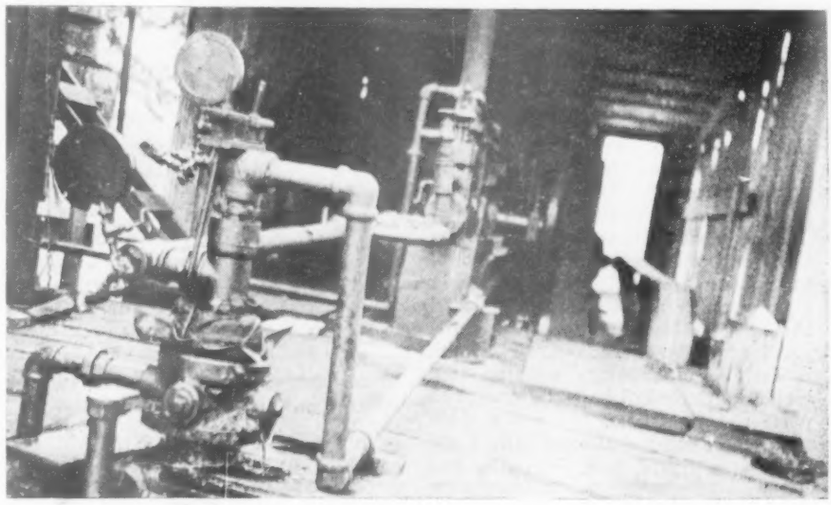
Water Column Replaces Rods in Pumping Equipment

PUMPING oil by using a 1½-inch column of water in place of a string of sucker rods is being worked out successfully under an experimental test being made in Cushing field by the Hydraulic Deep Well Pump Company of Joplin, Missouri. The experimental work, begun late in July on Pure Oil Company's Sina Crow 20, an old 2763-foot pumper in Section 5-18-7, between Drumright and Oilton, will continue for approximately 30 days, after which it is planned to use the new type pump on other Oklahoma properties.

The test is being made by Wilbur Squires, inventor of the system, and Allis-Chalmers Manufacturing Company engineers, assisted by a Pure Oil Company crew. Allis-Chalmers Company made the model being used for trial service, and a 25-horsepower General Electric motor is being used for power, running off of a high line in the field.

Sina Crow 20 ordinarily was good for 100 barrels of fluid daily, three barrels of which was oil. Following a three-day shut down for installing the new equipment the well produced 128 barrels of fluid, of which eight barrels was oil, on the rodless pump. Production was cut only one-fourth of one per cent under the initial test whereas the well formerly cut from one to four per cent. The outfit is set at 10 strokes per minute, and to produce 10 barrels per hour fluid.

The rodless pump is constructed on the U-pipe hydraulic principle with a power piston equally balanced between the 1½-inch water column and a three-inch water column at the bottom of the well on any given depth. The only power required to operate is the lifting of the amount of fluid pumped to the surface. The up-stroke of the pump mechanism is made from the hydrostatic head within the three-inch line. A 1½-inch line is lowered through a



Another view of the rodless pump hook-up, showing Allis-Chalmers jack connections.

three-inch line, and it is through the inside line that the water column hammers downward. None of the 1½-inch water column is displaced, but its drive downward displaces the three-inch column the length of the stroke, which, under the test, is 40 inches. Production is risen with the up-stroke of the three-inch liquid column.

Pump Installation

The pump is run on a three-inch line and set on an anchor at the bottom of the well so as to distribute the weight of the pump and the column on the clamps at the surface and at the bottom of the well. After this operation is completed a metal seat is attached to the 1½-inch line, which takes its own seat on the pump at the bottom of the hole. The 1½-inch and three-inch fluid columns are then separated and equally balanced on the power piston.

The operation of the pump is carried out by a differential hydraulic pressure applied at the surface in such a way as to give any length of stroke required for the purpose of setting the pump to carry the production of the well.

A leading feature is a sediment chamber in the working barrel, which traps off sediment that is pulled into the pump. The chamber is five feet long and holds approximately 10 gallons of sediment. Another sediment chamber is made on the anchor, giving the pump a double system of taking care of sediment, which is disposed of through the chambers without grinding in the working barrel.

The motor and jack will be built as a single unit with no belt and will be much smaller than the present working model, much of the power of which is not necessary, experimental tests have revealed. The horse power is running exceptionally low as power is consumed only on one-fourth of a complete revolution with no power expended on the up-stroke and only half power used on the power stroke.

The 1½-inch water column serves merely as the sucker rod string, having no displacement of this water line.

The operators are permitted to use any size pumping plunger up to three inches, and the power factor is controlled in any case by changing the hydraulic balance of the two water lines on the power piston. As the pumping plunger may be enlarged the power piston may be made in proportion to give uniform power results.

The object of the Deep Well Pump Company with this system is to operate over a long period without disturbing equipment in the well, making it "do time" in the hole and on any hole, regardless of how crooked. The outfit is designed to operate with no more trouble on crooked holes than with the perfect straight hole.

An interesting feature of the equipment is a liquid control on the jack, with which the stroke is handled by either trapping in or trapping out the liquid from the power cylinder.

A Bottom of the Hole Study of the Air Lift

(Continued from page 29)

The deeper wells of the Mid-Continent, as at Seminole, present the same pressure problems as the Gulf Coast, except that wells are spaced further apart, and each well is therefore more of an individual problem, setting up its own pressure diffusion zone, the measurement of which is impossible because of low interference factors between wells.

Mid-Continent

Here, the formation is usually consolidated, so that only a liner—with drilled holes or slots—is necessary to support the well wall. In the usual well, with a porosity of 20 per cent. of the oil sand, each foot length of 6¼-inch well bore presents 47 square inches of free inlet area from the sand pores—the inlet area being taken in percentage of porosity, which is not far from correct. Forty feet of oil sand, therefore, presents 1680 square inches of free inlet area—amply large for ordinary production, but in the softer strata of the same formation, which are open more than the harder, and which carry a greater part of oil and gas into the well bore, quick removal of pressure in the casing in starting, allowing heavy formation pressure to act inwardly, will cave the softer strata and allow sand to enter the well.

There should be a difference noted, however, in the sand entering a well of this kind. The whole body of sand, if it caves into the well, damages the well, requiring re-conditioning. But, the finer sand particles—silt and finer sand grains—flowing through the coarser pore spaces and entering the well, are removed with decided advantage, for these particles originally were in the pore spaces and removal increases porosity, opening the sand up to a more free flow.

If these accumulations of fine sand and silt are removed from a well, the well always responds with a free flow greater than before. Paraffin accumulations on the sand wall of the well may arrest the silt when it reaches the well wall, however, and therefore, paraffin should be removed at all stages of production, else accumulations in the sand adjoining the well will set up a non-porous zone surrounding the well and lower its production. At the same time, however, even though production may lower, pressure does not lower in the same proportion.

This particular feature of wells has been worked out in detail in the field by the writer; removal of paraffin always lets a considerable quantity of fine sand and silt-floating sand into the well immediately and the well has invariably sanded up with the fine sand, considerably finer than the body of sand, indicating its origin.

Wells with a heavy coat of paraffin on the well wall are more subject to damage by quick starting than when paraffin is removed because, by inference, when a column of oil is lifted from the casing quickly, formation pressure acts inwardly on the paraffin sealed well wall and is relieved more slowly than with a free flowing well wall. Melting paraffin off of a well wall by heat is not so difficult and, in addition to securing greater production by more free flow, removal of paraffin avoids some of the danger of starting with air, especially where the well wall is relatively soft. Bushel after bushel of fine sand removed from the same well at intervals in the foregoing manner served to sustain its production and to prevent any damage whatever to the well wall.

West Texas

Here, with lesser well depths, pressures of all kinds are less and injury to wells is less liable to occur, for there formations are somewhat like those of the Mid-Continent. Great production, however, of oil and gas, with considerable variation in production from well to well, indicates though that well finishing is of no great uniformity, or that paraffin accumulations set up resistance to flow with corresponding lack of uniformity in production between wells with the same relative location on structure and with the same thickness of producing sand.

Incidentally, paraffin accumulates at any stage of production; the large free flowing well accumulates paraffin just as readily as the small well, or the well in which production has lowered from its original high figure.

There is deep production, however, in West Texas, such as that recently discovered in Reagan County, upon which the observations of this paper apply, and it is reasonable to assume that further production in other fields will be found at greater depths.

West Texas wells—those southermost—are particularly subject to corrosion of lines. When wells are pumped with air, mixing with hydrogen sulphide, oxygen of the air serves to render hydrogen sulphide active—more so than without oxygen. Pumping with gas, therefore, is the better method, although hydrogen sulphide within itself, is the corrosive element and so long as it is in contact with iron and steel, corrosion will result.

Corrosion is most active at the lower end of flow lines and combination of sulphur with steel, at this locality, seems to neutralize, so to speak. Using the heaviest pipe at the bottom, to allow for corrosion, the longest service period results.

It is obvious that these wells should not be flowed up the casing with air lift, but should flow up an inner line, to avoid casing damage.

Of all chemicals, hydrogen sulphide is one of the most powerful corrosive effects on steel. Tests of many of the most active chemicals show, on an average, less effect than hydrogen sulphide or sulphurous vapors. All of us remember in our chemistry that sulphur and water in contact with iron simply eats the iron up immediately.

There are numbers of protective coatings that resist the action of all chemicals, but which are somewhat difficult to

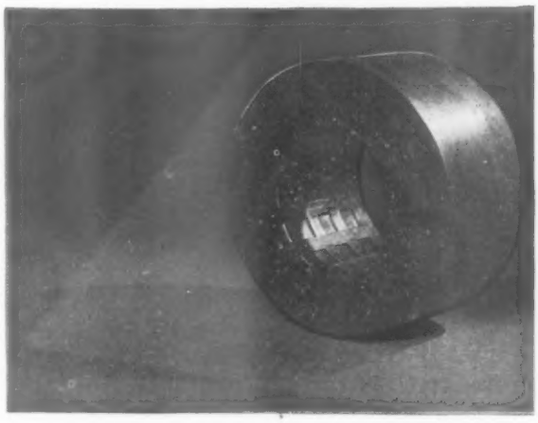
1/16" wear to 12,400 feet of hole

and still drilling

Eliminating metal-to-metal contact and using mud as a means of lubrication, Bettis Casing Protectors are proving extremely durable in the World's deepest wells, ranging in depth from 6,000 to 7,800 feet.

One Contractor completed a 6200-foot well, using Bettis Casing Protectors throughout the length of the string and found that the drilling string did not contact the casing at any point and even the original factory tool marks remained on the joints and couplings. The same drilling string was used in another 6200-foot well and after completion the Bettis Casing Protectors calipered less than 1/16" wear—and are still in service. Ask for complete data.

Best bet yet



Fully Patented

36 companies now using 28,630 B.P's.

Patterson-Ballagh Corporation
3769 Moneta Ave., Los Angeles
Stocks also carried at Houston
Texas & Louisiana Distributors:
Bettis Sales Co., 617 Public Nat. Bank Bldg., Houston

Bettis PROTECTORS

apply without extensive preparation. The volume of business in sight, however, in combatting corrosion of well lines, pipe lines and tanks sets up the likelihood that all metals used for containing these oils will eventually receive such coating of a permanent nature to secure longer life of casing, tubing, field lines, main lines and tanks. This is quite another subject, however, but the rapid corrosion observed in many instances of flow lines of air lift pumped wells is such that the subject deserves serious thought and liberal appropriation for overcoming.

(To Be Continued)

THE GAME'S GREATEST UMPIRE

By WALLACE DAVIS

The oil business may not be a game but there's many a wildcatter who doesn't know whether he's four feet from a million dollars or a million feet from four dollars. As much has been admitted by both those who have gone in and come out considerably worse for wear, and those who have stuck, and are still carrying on.

Oil leaders have striven for 50 years to live down the expression "game." It is hard to do when the element of chance is involved. It is harder still when the industry gets to the point where it has to be umpired.

It's "four balls to the batter, and you walk," in baseball—"four wells to the forty, and you run" in Seminole. Proration for a while did away with nearly everything but the freedom of the press in oil. The term "potential" nearly usurped the good old 24-hour gauge. Prices were so low it almost took the sub-surface departments to find the profits. It was getting to be a real game in every sense of the word about the time the recent reconstruction days started, after consumption finally turned out to mean more than just tuberculosis.

In picking an umpire for the game that waged hot at Seminole in June, 1927, the industry in the Mid-Continent must have done itself proud. Never, in any industry, has such a vital situation been settled so smoothly to the best interests of everybody concerned. Unlike most games, the roughest points were ironed out without a serious disagreement, and the industry won.

There were plenty of able leaders who might have handled the industry's great upset. But for that matter there were no doubt plenty of leaders who might have commanded the American Revolution—so the man who actually handled it is the one who deserves the credit.

While the co-operative move for oil conservation has been established throughout the country where critical fields demanded curtailment of production floods, the rapid-fire effectiveness of the initial plan inaugurated in Greater Seminole fields paved the way, pioneering a situation unequaled in previous oil history with success. Thus, umpiring the oil game at Seminole is significant as one of the biggest jobs ever known in America's fastest, and second largest industry.

RAY COLLINS

Ray Collins, of Tulsa, offered excellent material for an oil umpire when Seminole operators sought a man to fill the bill. He was an oil president, an old-time producer, a capable engineer, a natural leader. As an operator, he was not interested in Seminole, and thus was unbiased. Perhaps it is a coincident that he has a rare baseball record behind him. It is interesting the part the latter might have had in his making the oil game's greatest umpire.

We wonder if old Col. C. P. Collins back in the early days of oil in Pennsylvania knew what he was handing down to the industry when Ray M. Collins was born and brought up in the shadows of the derricks at Indian Creek, McKean County. C. P. Collins was one of the widest known and best liked producers in Pennsylvania in those days. Ray Collins must hold a record somewhat like that now, and competition is keener.

Collins attended grade school in Bradford, having moved there at an early age. In 1898 he entered Leeland-Stanford University, and for two years studied engineering there. As an engineer he entered the mining business, in charge of a gold mine in Colorado. Later he went to Peru for a year with the Inca Mining Company, assaying for the metallurgical department, and was located in the mountain region around the head waters of the Amazon River. His first entry into oil was in 1904, in Oklahoma, but he spent the summers of 1905-06-07 in the Klondykes of Alaska, gold mining. In this venture he was associated with "Uncle" Joe Evans, working for the Devonian interests in the East.

In the mining camps of Colorado, Collins gained a wide reputation in baseball, playing chiefly inter-company ball. Later, at Dawson, Alaska, this reputation grew through his service as a left fielder with the American nine against the British miners. The famous match of July 4, 1905, between the Americans and British miners is still remembered by many as bringing baseball in those days to its highest pitch. That game, in which Collins was a prominent figure, started like most baseball games among the Alaskans, at 10 o'clock at night, with midnight being no darker than the twilight in this country.

Baseball still has Collins as a staunch fan, but he shoots golf to keep in physical trim. While only a comparatively recent entrant into the latter sport he ordinarily takes between 90 and 95 on 18 holes.

As president and general manager for Echo Oil Company, of which he is a part owner, he is recognized in the Mid-Continent as a competent, practical producer.

The Ever Ready Protector

is easily installed in crooked holes or flowing wells

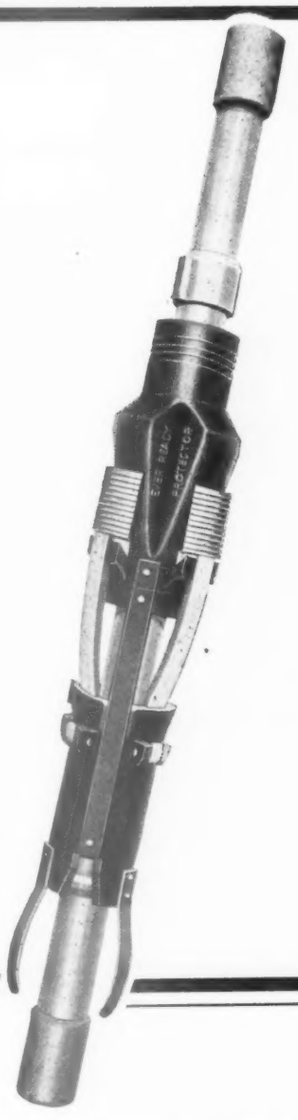
The EVER READY PROTECTOR offers *complete* tubing protection. Because it functions from a positive action of the tubing itself, the EVER READY PROTECTOR is by far the easiest to install, when running in fluid—crooked holes—or, against gas pressure.

It has been demonstrated that the tubing can be run and pulled as fast with an EVER READY PROTECTOR as if no protecting device were attached to the tubing, with the assurance of absolute safety.

All tubing anchor below the perforated pipe is eliminated with the use of an EVER READY PROTECTOR. The correct spot for pumping can be found in one installation, as the Protector itself being anchored, affords positive protection, and obviates the need of any anchor or extra pipe below the perforated pipe. Tubing can be raised and lowered at the will of the operator, without the necessity of pulling every time to cut off or add anchor or extra pipe, which saves Tubing Jobs.

GALVANIZED EVER READY PROTECTORS CAN BE FURNISHED AT A SMALL ADDITIONAL COST

The Smith Separator Company maintains a Corps of specialized men in the fields to render patrons efficient and courteous service at all times.



SMITH SEPARATOR COMPANY
Tulsa Okla.

EVER READY PROTECTOR

NEW YORK -:- LOS ANGELES -:- SHREVEPORT -:- HOUSTON -:- FORT WORTH

Say you saw it in The OIL WEEKLY

Magnolia Increasing Line to Howard Production

Dallas, Texas.—Magnolia Pipe Line Company has started construction work on a 12-mile six-inch line extending from Iatan station on its West Texas trunk line system to the deep pay area in Howard County in order to have adequate facilities to run the proration quota of the Magnolia Petroleum Company. This line parellels a four-inch line now serving the company's shallow producers. Magnolia Petroleum Company discovered the Howard County deep pay on the Dora Roberts land, and has more shut in production than any other operator. The Texas Railroad Commission has authorized a daily production of 15,000 barrels during the first month beginning August 15, and a maximum of 25,000 barrels daily for the following five months from deep pay horizon.

Magnolia Petroleum Company has seven 55,000 barrel steel storage tanks about filled with Howard County crude at its Iatan station in the southwest quarter of Section 12, Block 30, T. & P. Survey, T-1-S, Howard County, and is nearing completion on one new 80,000 barrel tank, while two more 80's were ordered last week. The company also ordered five new 80's for its Midland tank farm last week.

Kemmerer, Wyo. — Midwest Refining Company's pipe line from the LaBarge field to railroad at Opal, a distance of some 48 miles, has been completed and is now in use. About 2500 barrels of oil per day will be run through the line, and from Opal shipped to the Utah Oil Refining Company's plant at Salt Lake City.

Pump Gas Oil Through Crude Pipe Line

Bartlesville, Oklahoma. — Twenty thousand barrels of gas oil is being transported by the Empire Pipe Line Company through its Cushing-Ponca City crude oil line where it will be run through the pressure stills at the Ponca City refinery. It is possible to move a consignment of gas oil through an oil line with very little contamination to either the crude or the gas oils. This is accomplished by pumping the gas oil into the line and following the consignment with crude oil. By knowing the exact capacity of the line and keeping a check on the amount of fluid pumped, it is possible to ascertain within just a few minutes the exact time the gas oil will arrive at the other end of the line.

West Texas Production

WINKLER COUNTY

	Producing Wells	Daily Average Prod.
Hendrick Field—		
Southern Crude-R. A. Westbrook & Co...	35	*23,340
Roxana Petroleum Cor.	28	*22,130
Roxana & The Texas Company	20	*15,975
Pure Oil Company	23	*14,590
Humble Oil & Refining Co.	30	*13,555
Atlantic Oil Producing Co.	24	*11,820
Atlantic-Collett & O'Keefe	9	*11,640
Gulf Production Co.	18	*11,350
Southern Crude-Dixie Oil Co.	22	*7,180
Cranfill & Reynolds, Inc.	6	*7,095
Republic Production Co.	9	*6,765
Skelly Oil Company	9	*6,200
Independent Oil & Gas Co.	15	*5,235
Texon Oil & Land Co.	8	*3,725
Marland Production Company	5	*3,550
Prairie Oil & Gas Co.	3	*3,085
Murchison & Cranfill Bros. Oil Co.	6	*3,060
The California Company	8	1,860
Magnolia Petroleum Co.	8	1,360
Atlantic-Kessler-Logan	1	540
Winkler Oil Producing Corp.	1	*220
Total	288	174,275

CRANE COUNTY

	Producing Wells	Daily Average Prod.
Church & Fields—		
The Texas Company (was Landreth)	16	7,175
Simms Oil Co. & Atlantic Oil Prod. Co..	31	6,530
Prairie Oil & Gas Company	12	5,300
Tidal Oil Co. & Turman-Maxwell	25	4,435
Magnolia Petroleum Co.	33	4,375
Warner-Quinlan Co. of Texas	27	3,915
Humble Oil & Refining Co.	14	3,120
Gulf Production Co.	11	1,485
Independent Oil & Gas Co.	7	1,330
The Texas Company	3	495
Church-Fields et al	3	325
T. & P. Coal & Oil Company	1	55
Stidham & Thrasher	1	5
Total	184	38,545
Gulf-McElroy—		
Gulf Production Co.	63	14,520
Gulf-Waddell—		
Gulf Production Company	1	20
Marland-Hughes—		
Marland Production Co.	14	530
The Texas Company	9	135
McMan Oil & Gas Co.	2	55
C. C. Duffey et al	1	..
Total	25	720
Totals for Crane County	273	53,805

* Production partially pinched.

REAGAN COUNTY

	Producing Wells	Daily Average Prod.
Big Lake Field—		
Big Lake Oil Company	139	13,710
Texon Oil & Land Co.	79	3,895
Skelly Oil Co.	1	50
The California Company	1	..
Total	219	17,655

PECOS COUNTY

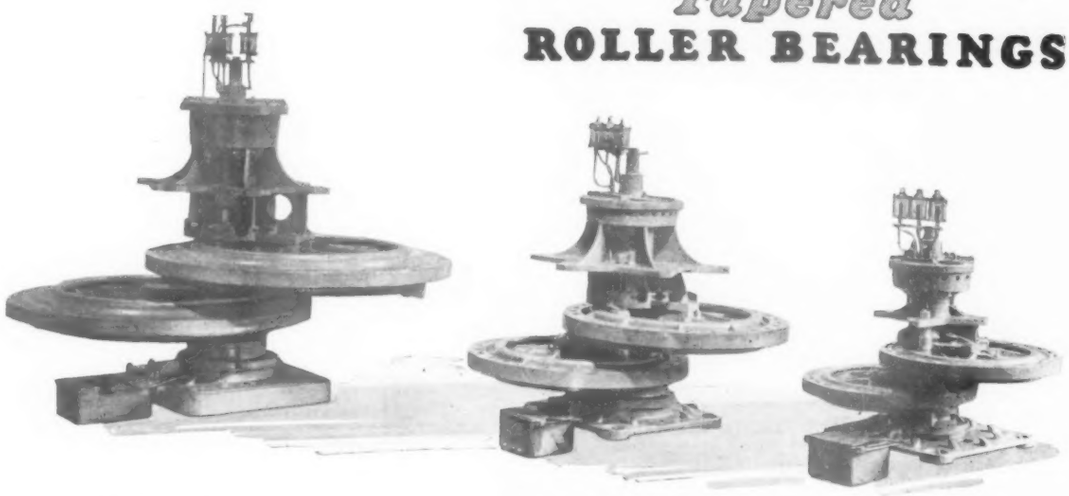
	Producing Wells	Daily Average Prod.
Yates Field—		
Mid-Kansas-Transcontinental Oil Co.	85	*22,005
The California Company	30	*14,405
Simms Oil Company	7	*5,425
Gulf Production Co.	21	*5,295
Gulf Prod. Co. (Crockett Co.)	3	190
McMan O. & G. Co. & Marland Prod. Co.	17	*4,840
Roxana Petroleum Corp.	19	*3,930
Humble Oil & Ref. Co.	13	*3,260
McMan Oil & Gas Co.	8	*2,570
Marland Production Co.	10	*955
Oil Operators Trust, Inc. & A. T. Herd.	7	*585
Madza Oil Corp. & Savoy Oil Co.	2	*355
Red Bank Oil Company	3	*205
Kirby Pet. Co. & Edson Pet. Co.	1	200
Cosby Drilling Co.	1	*195
Skelly Oil Company	1	105
Phillips Petroleum Co.	1	100
Matador Oil Company	1	75
Kirby Petroleum Co.	1	50
Dixie Oil Company (Crockett Co.)	1	20
Grayburg Oil Co. & T. T. Word	3	*15
Total	235	64,780

MISCELLANEOUS

	Producing Wells	Daily Average Prod.
Upton County	284	11,415
Howard County	162	*5,375
Mitchell County	141	3,030
Crockett County	41	2,965
Jones County	31	2,415
Fisher County	4	1,360
Loving County	4	145
Runnels County	2	135
Scurry County	5	40
Ector County	2	10
Total	696	26,890
Total for all fields	1,711	337,405

3 Reid Powers

Equipped with **TIMKEN** *Tapered* **ROLLER BEARINGS**

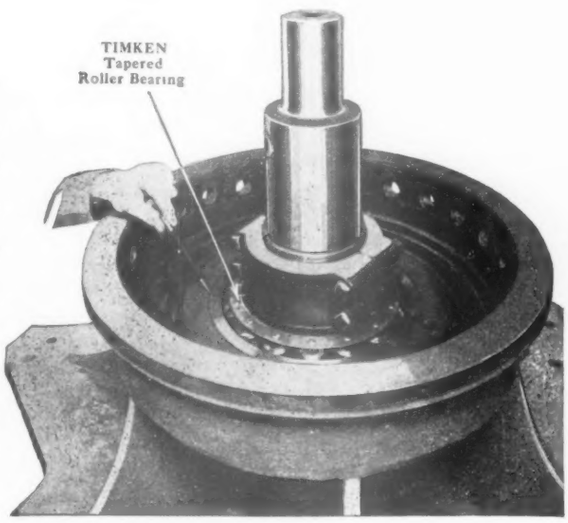


PX POWER CENTER PF POWER CENTER PC POWER CENTER

Comparative sizes of the three types of Timken Equipped Power Centers

These new powers combine time-tested features of Reid design with proven effectiveness of Timken Roller Bearings, resulting in practically eliminating friction in the center with consequent saving of power.

Type PC is furnished with 16, 18, or 20-foot diameter, 16-inch face wheel; Type PF with 24-foot diameter, 20-inch face wheel; and Type PX with 24-foot diameter, 28-inch face wheel.



WRITE FOR BULLETIN No. 39

JOSEPH REID GAS ENGINE COMPANY
OIL CITY, PENNSYLVANIA, U. S. A.

BRANCHES AND AGENCIES—Marietta, Ohio; Logan, Ohio; Newark, Ohio; Shreveport, La.; Charleston, W. Va.; R. B. Moore, Bolivar, N. Y.; Frick & Lindsay Co., Bradford, Penna, and Kentucky Distributors; S. R. Shoup, 724 Board of Trade Bldg., Los Angeles, Cal.; Frick-Reid Supply Company, Tulsa, Oklahoma, and Branches, Distributors for Oklahoma, Kansas, Texas, Arkansas and Wyoming. Branch Shop, Tulsa, Oklahoma.

EXPORT SALES REPRESENTATIVE: Oil Field Equipment Co., Inc., 30 Church St., New York City.

United States Daily Average Production

Figures below are taken from the complete revised estimates of the AMERICAN PETROLEUM INSTITUTE except for the current week, which are advance estimates issued by the A. P. I. and are subject to revision:

1927	Oklahoma	Kansas	Texas (Outside Gulf Coast)	Gulf Coast	North Louisiana	Arkansas	Eastern States	Rocky Mountain	California	United States Daily Ave.	United States Total
January	598,500	117,200	466,400	173,900	52,900	131,550	107,850	84,450	653,450	2,386,200	73,972,150
February	693,350	116,250	479,800	154,600	52,800	128,200	107,150	85,300	642,700	2,460,150	68,884,300
March	710,350	116,100	475,000	154,750	51,450	124,500	104,400	87,600	640,850	2,465,000	76,414,900
April	723,700	115,400	477,300	155,100	50,500	113,350	108,000	89,350	644,550	2,477,250	74,317,750
May	742,200	114,600	488,700	151,300	47,450	112,700	114,000	89,300	633,550	2,493,800	77,307,700
June	768,600	112,200	480,800	151,650	49,150	112,450	111,850	86,050	638,550	2,511,300	75,338,900
July	846,750	107,750	475,800	142,950	56,200	109,900	111,800	86,950	620,700	2,558,800	79,322,300
August	832,900	105,100	483,450	139,350	56,950	104,750	114,600	80,750	621,450	2,539,300	78,717,850
September	797,450	105,200	493,750	142,900	53,450	101,350	110,800	74,500	637,250	2,516,650	75,498,900
October	782,300	105,100	497,900	138,400	51,300	100,450	113,600	73,250	629,000	2,491,300	77,230,000
November	766,900	106,650	501,750	138,100	49,400	97,850	114,900	75,050	623,850	2,474,450	74,233,500
December	720,700	106,150	531,650	138,500	47,200	94,950	111,250	77,150	624,600	2,452,150	76,017,050
1928											
January	675,450	108,300	523,300	125,450	45,250	90,050	109,600	77,000	617,100	2,371,500	73,516,500
February	664,450	110,550	538,750	115,800	45,300	88,250	104,850	75,550	614,750	2,358,250	68,388,850
March	646,850	112,250	575,850	119,900	44,400	85,600	102,150	78,700	617,450	2,383,150	73,877,650
April	620,450	112,150	617,850	118,850	46,900	83,450	107,000	78,500	613,550	2,398,700	71,961,100
May	610,100	108,750	561,450	129,850	43,600	91,250	112,100	82,200	630,900	2,370,200	73,476,300
June	594,850	105,200	554,400	135,400	42,350	102,850	109,300	82,400	643,400	2,370,150	71,104,500
July 7	584,000	103,600	589,500	134,900	42,650	91,950	111,500	76,750	649,000	2,383,850	16,686,950
July 14	584,050	102,350	595,550	135,300	42,750	92,150	113,000	81,750	644,500	2,391,500	16,740,500
July 21	588,700	102,300	603,200	133,100	41,500	91,350	115,000	82,700	644,000	2,401,850	16,812,950
July 28	589,800	102,600	595,050	131,500	42,150	88,750	114,000	79,900	642,500	2,386,250	16,703,750
August 4	592,150	103,000	610,050	133,500	41,000	87,500	113,500	81,450	642,000	2,404,150	16,829,050
Increase	2,350	400	15,000	2,000	.....	.....	.....	1,550	.....	17,900	118,300
Decrease	.....	.....	.....	.....	1,150	1,250	500	.....	500	.....	.....

TEXAS

(Outside Gulf Coast)

PANHANDLE DISTRICT

	Aug. 4	July 28
Carson County	6,650	6,700
Gray County	20,300	21,000
Hutchinson County	35,700	34,000
Wheeler County	900	800
Others	200	200
Totals	63,750	62,700

NORTH TEXAS

Archer County	20,500	20,600
Burkburnett	10,000	10,050
Electra	13,650	13,750
Iowa Park-KMA	4,000	4,100
Montague and Cooke Co.'s	11,000	11,050
Wilbarger	32,800	31,150
Others	600	600
Totals	92,550	91,300

WEST CENTRAL TEXAS

Brown County	12,200	12,400
Callahan County	3,500	3,500
Coleman County	3,300	3,450
Eastland-Desdemona	7,450	7,600
Jack County	1,500	1,300
Palo Pinto County	400	450
Shackelford County	10,850	10,550
Stephens County	7,100	7,400
Throckmorton County	800	850
Young County	8,000	8,150
Others	600	600
Totals	55,700	56,250

WEST TEXAS

Crane-Upton Counties	64,150	65,400
Crockett County	3,100	3,200
Howard County	4,950	5,500
Jones County	1,600	1,650
Mitchell-Scurry Cos.	3,050	3,050
Pecos County	71,350	63,100
Reagan County	17,950	17,700
Winkler County	183,800	177,300
Others	1,600	1,600
Totals	351,550	338,500

EAST CENTRAL TEXAS

Corsicana-Powell	10,550	10,600
Currie	450	450
Mexia	6,900	6,900
Nigger Creek	1,000	1,050
Richland	550	550
Wortham	1,700	1,700
Totals	21,150	21,250

SOUTHWEST TEXAS

Dale	1,200	1,200
Laredo District	8,700	8,600
Luling	13,250	13,100
Lytton Springs	1,100	1,050
Somerset	700	700
Others	400	400
Totals	25,350	25,050
Total Texas (Outside Gulf Coast)	610,050	595,050

TEXAS GULF COAST

Barbers Hill	750	700
Batson	1,400	1,400
Big Creek	3,850	3,000
Blue Ridge	7,000	6,500
Boling	2,300	2,000
Damon Mound	800	800
Goose Creek	6,800	6,600
Hull	10,400	10,650
Humble	1,350	1,300
Orange County	3,750	3,900
Pierce Junction	11,700	12,050
Saratoga	1,000	1,050
Sour Lake	3,400	3,400
South Liberty	3,700	3,800
Spindle Top	36,650	37,000
West Columbia	8,200	8,200
Others	2,250	2,400
Totals	105,300	104,750
Texas Total	715,350	699,800

OKLAHOMA

North Braman	3,000	3,050
South Braman	1,500	1,500
Blackwell	3,450	3,500
Hubbard	2,600	2,650
Thomas	1,400	1,400
Tonkawa	13,350	13,600
Garber	8,400	8,450
Burbank	29,400	29,400
Osage (outside Burbank)	26,900	26,950
Cushing	19,900	19,850
Yale Jennings	7,550	7,600
Davenport	1,900	1,900
Bristow-Slick	21,050	21,400
North Okmulgee	14,750	14,800
Lyons Deaner	5,850	5,900
Cromwell	9,400	9,250
Papoose	4,100	4,200
Wewoka	6,000	6,200
Seminole	50,100	50,700
Bowlegs	56,550	56,550
Searight	12,700	12,950
Little River	43,400	40,150
Earlsboro	75,700	77,100
Duncan District	7,800	7,800
Graham	5,350	5,350
Fox	1,600	1,600
Healdton	14,150	14,150
Hewitt	9,600	9,650
Allen	21,950	21,900
Scholem Alechem	15,750	15,650
Pearson	3,900	4,300
St. Louis	39,500	38,050
Others	53,600	52,300
Totals	592,150	589,800

CALIFORNIA

Santa Fe Springs	38,000	36,500
Long Beach	198,000	202,000
Huntington Beach	52,000	53,000
Torrance	17,000	17,000
Dominguez	11,000	11,000
Rosecrans	6,000	6,000
Inglewood	29,000	29,000
Midway-Sunset	73,000	71,000
Ventura Avenue	53,000	53,000
Seal Beach	32,000	33,000
Others	133,000	131,000
Totals	642,000	642,500

KANSAS

Greenwood County	28,350	28,500
Florence-Covert	1,000	1,000
Peabody-Ebling	3,200	3,200
Eldorado-Towanda	12,900	12,950
Augusta-Fox Bush	3,350	3,400
Rainbow Bend	1,550	1,600
Russell	3,600	3,800
Churchill	9,850	10,250
Oxford	10,300	10,400
Others	28,900	27,500
Totals	103,000	102,600

NORTH LOUISIANA

	Aug. 4	July 28
Homer	4,350	4,400
Haynesville	6,050	6,100
Caddo Light	9,750	9,600
Caddo Heavy	3,200	3,200
DeSoto-Red River	4,050	4,600
Elm Grove	600	600
Bellevue	850	850
Cotton Valley Light	750	*
Cotton Valley Heavy	3,900	*4,000
Urania	6,900	7,300
Pleasant Hill	600	600
Totals North Louisiana	41,000	42,150

*Cotton Valley light and heavy grouped.

LOUISIANA GULF COAST

Bayou Boullion	500	800
East Hackberry	6,050	4,300
Edgerly	1,100	1,100
Evangeline	2,000	1,050
Lockport	3,600	3,500
Sorrento	1,400	1,450
Sulhpur Dome	3,900	4,200
Sweet Lake	3,900	4,350
Vinton	4,500	4,600
Others	1,250	1,400
Total Louisiana Gulf Coast	28,200	26,750
Louisiana Total		68,900

ARKANSAS

El Dorado	5,400	5,400
Champagnolle	12,650	13,450
Smackover Light	7,550	7,450
Smackover Heavy	57,450	57,900
Stephens	1,000	1,050
Nevada	1,350	1,400
Lisbon	2,000	2,000
Others	100	100
Totals	87,500	88,750

MOUNTAIN STATES

WYOMING

Salt Creek	39,800	38,200
Grass Creek	2,450	2,450
Elk Basin	1,050	1,050
Big Muddy	2,700	2,700
Lost Soldier	4,050	4,100
Rock River	2,700	2,850
Lance Creek	600	600
Others	6,950	7,300
Totals	60,300	59,200

MONTANA

Cat Creek	1,650	1,700
Sunburst	8,300	8,300
Others	100	100
Totals	10,050	10,100

COLORADO

Moffats (Craig)	1,400	1,350
Fort Collins	2,700	2,700
Florence	1,100	1,150
Others	3,050	2,200
Totals	8,250	7,400

NEW MEXICO

Artesia	1,100	1,100
Hogback	350	300
Rattlesnake	1,200	1,200
Others	200	200
Totals	2,850	2,800
Totals Mountain States	81,450	79,900

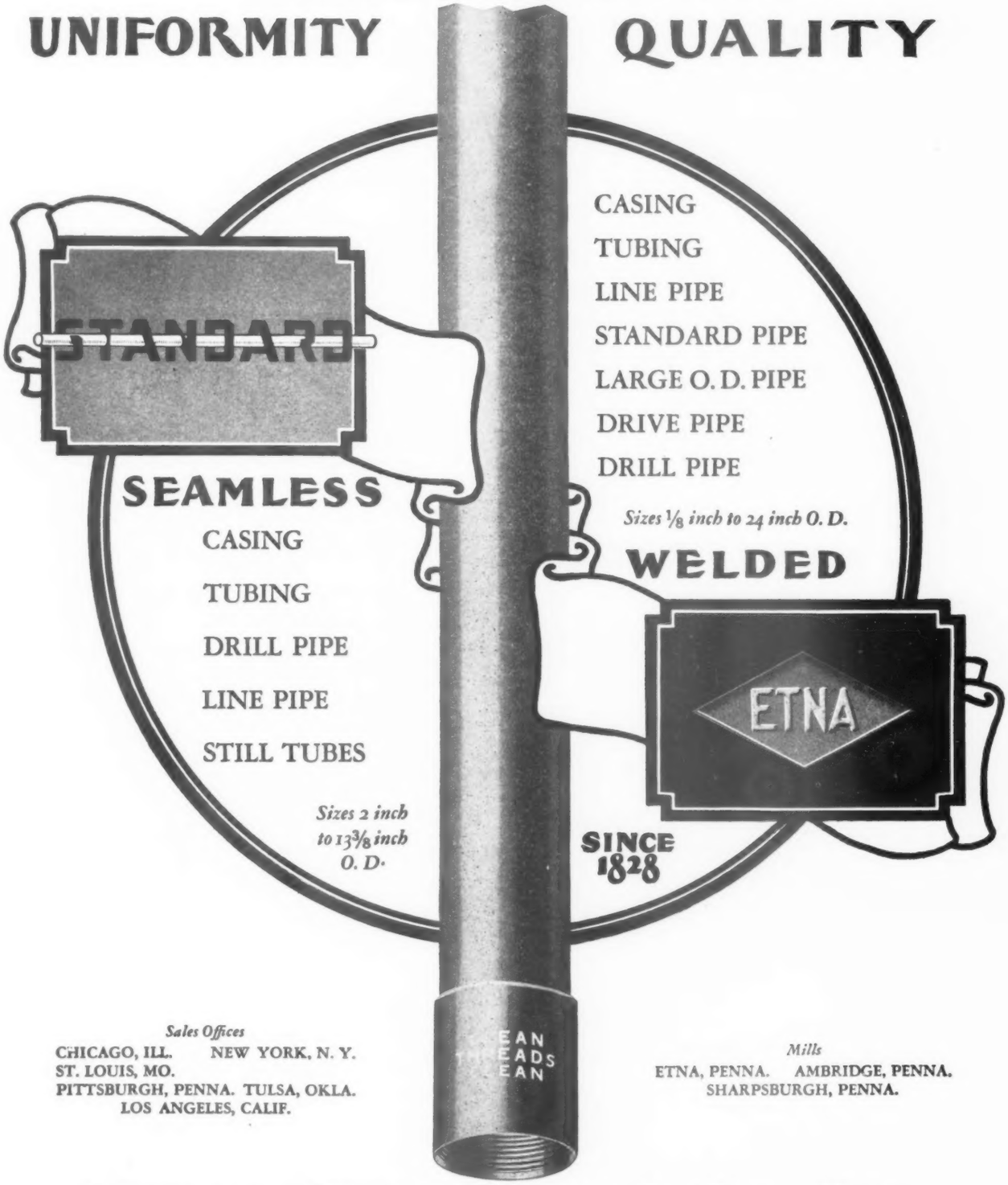
EASTERN STATES

(Including Ill., Ind., Ohio, W. Va., Pa., Ky., and N. Y.)	113,500	114,000

PRODUCTION SUMMARY

East of Rockies	1,680,700	1,663,850
United States	2,404,150	2,386,250

Assured
DEPENDABILITY
UNIFORMITY QUALITY



Sales Offices
CHICAGO, ILL. NEW YORK, N. Y.
ST. LOUIS, MO.
PITTSBURGH, PENNA. TULSA, OKLA.
LOS ANGELES, CALIF.

Mills
ETNA, PENNA. AMBRIDGE, PENNA.
SHARPSBURGH, PENNA.

SPANG, CHALFANT & CO., INC.
GENERAL OFFICES, CLARK BUILDING
PITTSBURGH, PA.

Say you saw it in The OIL WEEKLY

PERMITS GRANTED FOR NEW WELLS

WEEKLY COMPARISON OF NEW WELLS

Following is a condensed table giving a comparison of permits or locations made for new wells during the past year in Kansas, Oklahoma, Arkansas, Louisiana, Texas, California and the Mountain States:

	Week ending Aug. 4	Prev. ious week	Total this month	Total this year	This week last year	This month 1927	Total same date 1927	Year total 1927
Arkansas	..	4	..	256	8	8	234	329
California	15	35	15	618	18	18	846	1,226
Louisiana	7	22	7	423	11	11	426	812
Kansas	24	27	24	650	15	15	636	972
Oklahoma	88	94	88	2,150	88	88	2,616	3,702
Texas	128	160	128	4,777	98	98	6,050	8,665
Mountain States	..	..	..	..	..	..	340	494
Total	262	342	262	8,874	238	238	11,128	16,149

OKLAHOMA

CARTER COUNTY — Magnolia Pet. Co., Denny 2, nw ne ne, 30-1s-3w. Hefner 4, ne nw sw, 33-1s-3w. C. Anderson et al, Eaves 1, sw nw sw, 24-1s-3w.

COAL COUNTY—I. T. I. O. Co., Cook 1A, se sw nw, 10-1n-11e.

COTTON COUNTY—Moore et al, Cobb 1, swc ne, 2-2s-10w. L. E. Bennett, Glesner 1, nec sw, 30-1s-9w.

CREEK COUNTY—Sinclair O. & G. Co., Morton 1, nwc sw se, 27-14-10e. Madden & Madden et al, Farmer 3, se nw se, 13-15-9e. Kennedy & Horner, Strip 3, swc, 24-18-11e. J. W. Henry et al, Talamase 1, c nw sw, 7-15-7e. Tidal Oil Co., Robertson 4, sec nw se, 20-17-7e. W. B. Pine et al, Hill 1, swc ne se, 20-17-7e.

GRADY COUNTY—Carter Oil Co., Horton 7, sw se se, 8-3n-5w. Twin State Oil Co., Cox 3, nec se, 14-4n-8w. Commerce Development Co., Parks 3, swc, 13-4n-8w. Meridian Gas Co., Serrita 3A, sw nw sw, 25-5n-8w.

HUGHES COUNTY—Sutton et al Meadors 1, nec se, 27-9-10e.

KAY COUNTY—Riley Royalty Co., Manley 1, sec ne, 9-26-1e.

LINCOLN COUNTY—T. B. Slick et al, Kimball 1, sec sw, 5-14-4e.

LOGAN COUNTY—Blackwell O. & G. Co., Quigley 1, sec nw, 28-18-4w.

MUSKOGEE COUNTY—J. A. Evans et al, Cobb 1, se nw sw, 6-14-19e. Jack Summers Howard 2, end nw se, 29-15-16e.

NOBLE COUNTY—Alco Royalty Co. Waltermire 1, sec nw, 33-21-1w.

OKFUSKEE COUNTY — W. L. Umbrum, Tiger 3, nec nw, 2-10-11e, Sands Pet. Co. et al, Knight 1, nwc se, 16-11-9e.

OKMULGEE COUNTY—E. M. Cranfield et al Anderson 2, sec sw sw, 8-14-15e. Tidal Oil Co., Thornburg 1, sec nw nw, 7-12-12e. M. Kavanough Tr., Unallotted 1A, swc nw nw, 1-13-12e. Noble O. & G. Co., Gay 1, nec nw, 12-15-12e.

OSAGE COUNTY — Osage Gas Producers 390-cel sw ne, 32-24-12e. I. T. I. O. Co., 397, sec sw ne sw, 4-23-9e. 272, nwc sw nw nw, 32-25-11e. Minnehoma Oil Co. 2, cwl se, 11-26-8e.

PONTOTOC COUNTY—W. R. Ramsey Fee 1, sw nw ne, 6-4n-7e. Blackstock & Delaney Patterson 1, nwc 29-5-8e. Alf Tillman et al, Lowry 1, nw ne se, 31-5-5e. Homaokla Oil Co. Berry 6, sw se ne, 19-5-8e.

POTTAWATOMIE COUNTY—T. B. Slick Smith 2, ne nw se, 30-7-5e. Prairie O. & G. Co., Gammon 2, se nw nw, 29-7-5e. Pure Oil Co., Thrailkill 1, swc nw, 19-7-5e. Magnolia Pet. Co., Fyke 1C, ne se se, 20-7-5e. Roy White 1, se sw ne, 20-7-5e. Madasha 1, ne sw nw, 29-7-5e. Indep. O. & G. Co., Blandin 2, nwc sw, 30-7-5e. Mahtat-was 1, nw ne se, 30-7-5e. Gypsy Oil Co., LeClair 2, ne sw se, 23-7-4e. Interocean Oil Co. McGee 5, sw ne se, 23-7-4e. Shaffer O. & R. Co., Cherry 2, nw se se, 23-7-4e. Sinclair O. & G. Co., Blandin 6, se nw sw, 24-7-4e. Darby Pet. Co., Hathcock 1, nec, 22-7-4e. Magnolia Pet. Co. Germany 1, sec nw, 30-9-5e.

SEMINOLE COUNTY—The Texas Co. Lucy 3, nw se se, 18-8-5e. Gypsy Oil Co., Peter 9, nw ne nw, 18-5-8e. Sinclair O. & G. Co., Nakotche 1, ne nw sw, 18-5-8e. The Texas Co., Lucy 2, ne sw se, 18-5-8e. Anderson & pritchard, Culley 6, nw se se, 18-5-8e. Burke Greis Lucy 2, sw ne se, 18-5-8e. Gilcrease Oil Co., Reed 1, se sw nw, 18-5-8e. Gypsy Oil Co., Peter 7, sw se nw, 18-5-8e. Peters 8, nw se nw, 18-5-8e. Carter Oil Co., Thomas 3, se ne se, 11-7-6e. Mid-Continent Pet. Corp., Bruner 4, ne se se, 11-7-6e. Blackwell O. & G. Co., Talley 3, nw sw sw, 14-7-6e. Carter Oil Co., Tewee 4, se sw ne, 14-7-6e. T. B. Slick Williams 7, sw se ne, 15-7-6e. Williams 7, sw se ne, 15-7-6e. T. B. Slick, Williams 8, nw se ne, 15-7-6e. Gypsy Oil Co., Canard 3, sw ne ne, 22-7-6e. Magnolia Pet. Co., Reed 5, nw se ne, 22-7-6e. Gypsy Oil Co., Cotcha 3, ne nw sw, 23-7-6e; Cotcha 4, nw ne sw, 23-7-6e. Indep. O. & G. Co., Harris 6, sw se nw, 23-7-6e. The Texas Co., Hotulke 3, ne sw nw, 23-7-5e. The Texas Co., Hotulke 4, se sw nw, 23-7-6e. Pure Oil Co., Strothers 8F, nec nw, 10-8-6e. Carter O. C., Fuswa 1, nw ne nw, 18-8-6e. I. T. I. O. Co., Lawyer 1, sec nw, 26-8-6e. C. L. McMahon et al, Harjo 1, sw nw se, 7-8-6e.

STEPHENS COUNTY—Page et al Enloe 1, nw sw ne, 31-2s-7w. Petroleum Producers Co., Bond 7, nec nw nw, sw, 7-2s-7w. Wirt Franklin Pet. Corp., Brittain 5, nwc se, 12-1s-4w. Amerada Pet. Corp., Hanson 3, swc 12-1s-4w. Magnolia Pet. Co., A. Dolen 1, swc, 17-1s-8w.

TULSA COUNTY—Ellen O. & G. Co., Island 7, nwc ne ne, 25-18-14e. Altitude Pet. Co., Perryman 4, nwc sw sw sw, 30-19-13e.

WAGONER COUNTY—Turley Bros. Haynie 1A, nec nw nw se, 12-17-15e. A. K. Creighton childers 4, nwc ne sw, 22-18-17e.

KANSAS

BUTLER COUNTY—A. M. Landon Palmer 1, sw ne ne, 6-27-6e.

CHAUTAUQUA COUNTY — Elmwood Oil Co. Helton 3, c nw ne, 15-32-9e.

COWLEY COUNTY—Minnehoma Oil Co., Denton 4, se ne se, 4-31-8e. Ferguson 3, nec se, 4-31-8e. Shawver et al, Cook 1, nec 20-30-4e.

ELK COUNTY—Waggoner & Spencer Stewart 1, nwc sw, 19-28-12e. Benje & Bandwinted Bateson 1, swc nw, 24-28-11e. E. B. Shawver Ferguson 1, sw nw nw, 3-31-8e. Smith & Ashe Miller 1, se sw ne, 16-31-9e.

ELLIS COUNTY—James Brouk et al Wagner 1, c se se, 35-15-16w. Moncrief & Thomas Johnson 1, sec nw, 9-13-19w. Empire O. & R. Co., Wann 1, nec, 21-12-19w.

GREENWOOD COUNTY—Polhamus Hull 1, ne se ne, 24-24-8e. Ladow Gas Co., Lawrence 1, se sw se, 4-27-13e. Lassen et al, Wilkinson 7, nec se ne sw, 6-25-9e. Empire Oil & Ref. Co., Ot t10A, ne se nw, 25-22-12e.

MARION COUNTY—J. B. Hannah et al, Bankratz 1, nec sw, 13-20-3e. Mayre et al, Popp 1, swc ne, 10-18-2e. Phillips Pet. Co., Harwood 2, nwc sw, 13-17-4e.

McPHERSON COUNTY—Mid Co Pet. Co., Hawkenson 1, nwc se, 32-18-2w.

RUSSELL COUNTY—Liggett et al, Mair 1, se ne se, 8-11-15w. Mid West Exploration Co., et al, Bronson 33, se sw se, 20-11-15w.

SEDGEWICK COUNTY—R. McGlashen et al Buckles 1, nwc se, 3-28-1w.

WOODSON COUNTY—Empire O. & G. Co. Berry 1, nwc sw, 27-23-13e.

CALIFORNIA

ARROYO GRANDE—San Luis Syndicate, No. 2, 31-31-13. A. T. Jergins Trust., McNee 3-A, 31-31-13.

HUNTINGTON BEACH — P. Campbell, Campbell 1, 10-6-11.

KERN COUNTY—P. R. & W. Co., No. 1, 14-29-27. General Petroleum Corp., Kerwin 32, 32-29-29. Pacific Coast Oil Co., Rio Bravo 1, 15-29-25.

LONG BEACH—Miley Oil Co., Mills 8-A, 19-4-12. Southern California Drilling Co., Miller 1, 29-4-12. Dabney-Johnston Oil Corp., No. 18, 30-4-12. Shell Co., Pickler 9, 29-4-12.

MIDWAY—Honolulu Consolidated Oil Co., No. 25, 8-32-24.

MT. POSO—General Pet. Corp., Glide 21-27, 21-27-28. Petroleum Securities Co., Glide-Vedder 1, 15-27-28.

SEAL BEACH—Marland Oil Co., Bixby 22, 3-5-12.

TORRANCE—Chanslor-Canfield Midway Oil Co., Torrance 82, 15-4-14.

LOUISIANA

ASCENSION PARISH — Gulf, Houston, United Lands Co, 9, 15-10s-4e, 1604 feet e and 850 ft n of sw c.

CAMERON PARISH—Roxana Pet. Corp., Houston, Mrs. J. B. Watkins 3, 7-12s-12w, 2286.6 ft w and 1273.2 ft s of ne c.

EAST CARROLL PARISH—Palmer Corp. of La., Shreveport, Carroll Land Co. 1, 21-19n-11e, 660 ft s and 660 ft e of nw c ne sw.

IBERIA PARISH—Louisiana Land & Explo. Co., Houston, Avery Island Land & Dev. Co. 2, 13-13s-5e, 2683 ft s and 2439 ft w of ne c.

ST. MARTIN PARISH—A. G. Broussard, Breaux Bridge, Bergeron 2, 72-9s-5e, 9180 ft w of e line and 149 ft s of n line of sec 72. Ohio Oil Co., Shreveport, Robt. Martin et al 3, 32-9s-7e, 503 ft s and 367 ft e of nw c se ne.

VERMILION PARISH—Paul Braindt, Jennings, F. Marceaux 1, 30-11s-2w, 1100 ft n and 350 ft w of se c nw.

TEXAS

ARCHER COUNTY—Magnolia, Dallas, Hudson 12, blk 80, Harris sur, se corner. Sun Oil Co., Dallas, Ford 3, E. H. Fitzgerald sur, 300 ft s of No. 1.

BROWN COUNTY—Royal Pet. Co., Brownwood, Etheridge 11, K. C. S. L. sur, 150 ft from e and 700 ft from s line. Farlyn Oil Co., Houston, Eeds 1, 636, J. Day sur, 1057 ft from e and 150 ft from s line. C. C. Outhier, Brownwood, Anderson 1, 282, S. Jones sur, 150 ft from n and w lines. J. A. Bearman, Cisco, Spencer 1, T. J. Scoville sur, 1000 ft from n and 450 ft from w line. Paul A. Diggs, Fort Worth, Eads 5, north central. Anna Belle Oil Co., Cisco, Armstrong 3, 151, P. Curlong sur, 600 ft n of No. 2. W. T. Daniel, Brownwood, Curry 1, s 40, H. T. & B. sur, 150 ft from s and w lines.

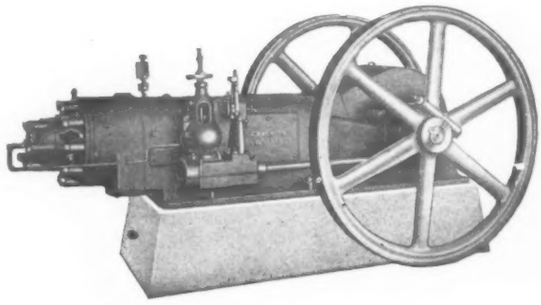
BEXAR COUNTY—Marland and Sun Oil Co., Dallas, Stuart 1, 6, M. Monjaras sur, north central. Schimmel Prod. Corp., Fort Worth, Tick 13, 265, J. Wilson sur, 617 ft n of No. 9; 12, same sur, 560 ft s of No. 2.

CALLAHAN COUNTY—R. G. Ferguson, Moran, Gray 1, s 112, Univ Lands sur, 450 ft ft from n and w lines. Jeffers & Jeffers, Wichita Falls, Worsham 1, blk 103, Byers Bros. sur, 1320 ft from n and 660 ft from e line. E. N. Schaffner et al, Cross Plains, Long 3, 777, sur, 300 ft e of No. 2. T. A. Upshaw, Stamford, W. G. Anderson sur, 250 ft se of No. 1; 4, same sur, English 1, s 46, L. A. L. sur, 950 ft from e and 1100 ft from s line.

COLEMAN COUNTY—E. W. Price, San Antonio, Lefevre 1, s 20, G. H. & H. sur, 150 ft from n and e lines. Simms Oil Co., Dallas, Brannan 1, 659, S. Sprague sur, 750 ft from e and 150 ft from s line. Cranfill & Reynolds,

FRANKLIN VALVELESS
OIL AND GAS ENGINES

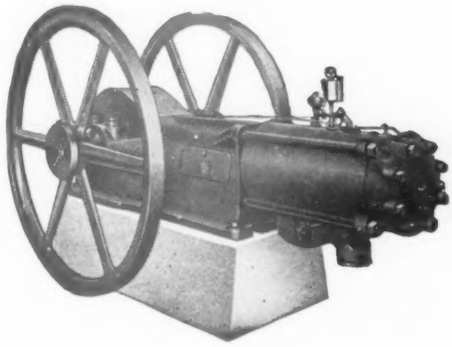
Franklin Pumping Engines



Oil Pumping Engine

Here is the power plant that has the fewest possible number of parts to require attention, adjustment, repairs or replacement. After you've finished drilling, move in one of the Franklin Oil Pumping Engines. Any user will tell you that it can be operated at an extremely low fuel, water and lubricating cost.

These pumpers come in 30, 40, 50 and 75 Horse Power. Can be equipped with Reverse or One Way Clutch.



Gas Pumping Engine

After you've finished making hole, move your Drilling Engine to the next job and hook up a Franklin Gas Pumping Engine. Interchangeable on the same block without shifting a single bolt. These engines can show you a power, speed and flexibility almost unbelievable.

Say good-bye to the old "biler" and learn what real economy and freedom from trouble is like. Ask any Franklin user!

FRANKLIN VALVELESS ENGINE CO.
FRANKLIN, PENNA.

Distributed by

Oil Well Supply Co.

Branches in All Oil Fields

Cisco, Henderson 1, 494, P. Young sur, sw corner.

CALDWELL COUNTY—Hadley Oil Corp., San Antonio, Wilson 1, J. Radford sur, 1050 ft from n and 450 ft from e line. W. H. Kennon, San Antonio, Blanks 1, E. Hines sur, 1450 ft from w and 150 ft from n line. Magnolia, Dallas, Lochman 1, Gaudalupe College sur, 150 ft from s and w lines; Mercer 9, J. Berry sur, 300 ft se of No. 3.

CRANE COUNTY—C. C. Duffy, Midland, Cowden 2, s 18, C. C. S. D. & R. G. N. G. sur, north central.

T. W. Callahan, San Antonio, Todd 1, s 13, B YZ sur, 1320 ft from w and 300 ft from s line.

DUVAL COUNTY—J. W. O'Bryne, San Antonio, Norton 1, s 250, blk 19, 150 ft from s and e lines.

EASTLAND COUNTY — Magnolia, Dallas, Ford 2, S. J. Robinson sur, north central. Westmoreland 3, S. J. Robinson sur, se corner. Sanderford, Hazlip & McGee, Eastland, Webb 1, s 12, blk 2, H. & T. C. sur, se corner. Porter Dev. Co., Eastland, Earp 1, E. E. Head sur, 500 ft from e and 200 ft from s line. Magnoli, Dallas, Wright 3, blk 1, T. Tyler sur, ne corner.

FORT BEND COUNTY — Watts Oil Co., Houston, Blakely 7, blk B, E. Drew sur, 50 ft from n and w lines. Bowden Oil Co., Houston, Overly 1, E. Drew sur, 50 ft from s and e lines; 2, same sur, 50 ft w of center of e line; 3, same sur, 50 ft from s and w lines. Gulf Prod. Co., Houston, Moore 17, M. Smith sur, ne corner.

FISHER COUNTY—Del Norte Dev. Co., San Angelo, McWhister 1, s 295, blk 2, 155 ft n of center of s line.

GLASSCOCK COUNTY—Magnolia, Dallas, Roberts 9, s 136, blk 29, W. & N. W. sur, 330 ft from n and e lines; 10, same sur, 330 ft from n and w lines.

GRAY COUNTY—Roxana, Dallas, Shaw 1, s 5, blk 1, A. C. & B. sur, 257 ft from w and 300 ft from s line.

HOWARD COUNTY—Godley O. & G. Co., Dallas, Hooks 15, s 140, blk 29, W. & N. W. sur, 200 ft from n and 640 ft from e line. Sprague Oil Corp., Ardmore, Okla., Roberts 2, s 156, blk 29, W. & N. W. sur, 150 ft from s and w lines. Marland Oil Co., Fort Worth, Clay F1, s 138, blk 29, W. & N. W. sur, 150 ft from n and e lines.

HARRIS COUNTY—S. & M. Oil Co., Houston, Cook 1, N. H. Pead sur, 1200 ft from w and 700 ft from s line. Hancock & Watts Oil Co., Houston, Bender 1, R. Dunman sur, 300 ft from n and e lines.

HASKELL COUNTY—L. D. Hill, Fort Worth, Proctor 1, A. Rodriguez sur, 450 ft from w and 150 ft from s line.

HARRISON COUNTY—Nick Barbare, Waskum, Furrh 10, J. Short sur, 300 ft from w and 50 ft from s line.

JEFFERSON COUNTY—Yount-Lee Oil Co., Beaumont, Gladys 26, 12, J. A. Veatch sur, 684 ft from s and 205 ft from w line; 66, blk 97, same sur, 135 ft from e and 85 ft from s line; McFaddin 78, P. Humphreys sur, 255 ft from w and 432 ft from n line.

JIM HOGG COUNTY—E. St. Albans, Laredo, Holbein 3, 3, Las Animas sur, 150 ft from n and 270 ft from w line.

JONES COUNTY — Marland Oil Co., Fort Worth, Mason 4, s 18, blk 19, T. & P. sur, 330 ft from w and 962 ft from s line.

MILAM COUNTY—Lowenstein Oil Co., Rockdale, Demkye 1, Wm. Allen sur, 300 ft from n and 600 ft from e line.

PECOS COUNTY — Gulf Prod. Co., Fort Worth, Yates 17, R. C. S. L. sur, 1300 ft se of No. 10; 18, same sur, 1600 ft se of No. 8; 19, same sur, 2100 ft ne of No. 12. California Co., Colorado, Smith 3, s 26, blk 194, G. C. & S. F. sur, 990 ft from s and e lines.

PANOLA COUNTY—M. H. Smith, Shreveport, La., Caldwell 2, Womack & Shandoin sur, 400 ft from e and 500 ft from s line. Texas Co., Wichita Falls, Brumble 5, J. Womack sur, ne corner; 6, E. Brackin sur, 300 ft from s and 330 ft from e line. Bethany O. & G. Co., Shreveport, Werner Co. 4, J. Storey sur, 583 ft from e and 732 ft from s line. Arkansas Nat. Gas Corp., Shreveport, Burns 2, W. A. Birdsong sur, 961 ft from n and 917 ft from e line.

PALO PINTO COUNTY—Texas-Fidelity Oil Corp., Fort Worth, Eddelman 1.

SHACKLEFORD COUNTY — Meredith & Grant, Moran, English 10, 300 ft w of No. 1. T. H. P. Duncan, Fort Worth, English 1, s 18, Univ Lands sur, 450 ft from w and 150 ft from s line. Gilman, McMurray & Atlantic Oil Prod. Co., Dallas, Reynolds 1, s 25, blk 11, T. & P. sur, 150 ft from e and 450 ft from s line. J. P. Harris, Mineral Mells, Matthews 2A, s 57, E. T. Ry sur, 150 ft from n and 700 ft from w line. Meredith & Grant, Moran, English 11, s 29, Univ Lands sur, 300 ft w of No. 9; 9, sams sur, 750 ft from e and 150 ft from s line. L. B. Tannehill, Albany, Moberly 9, s 1, G. H. & H. sur, 1500 ft ne of No. 4. Texas Co., Cisco, Osborne 6, s 30, Univ Lands sur, 300 ft w of No. 5. Cranfill & Reynolds, Cisco, Davis 1, s 33, blk 13, T. & P. sur, ne corner. Roeser & Pendleton, Inc., Fort Worth, Cook C24, s 60, E. T. Ry sur, 414 ft from n and 932 ft from w line; Cook A8, s 61, E. T. Ry sur, 289 ft from s and 81 from w line. Hutton Oil Corp, and Flournoy. Cisco, Poindexter 2, s 44, Bayland Asy sur, 150 ft from e and 750 ft from s line. States Oil Corp., Eastland, Hudman 1, s 17, Bayland Asy sur, 635 ft from n and 660 ft from w line. Geo. McCool et al, Albany, Blach 1, 398, T. E. & L. sur, 780 ft from n and 790 ft from e line. C. F. Steele, Rosston, Ark., Leschber 9, 545, T. E. & L. sur, 300 ft sw of No. 8. Scott & Walker, Albany, Huskey 25, 548, T. E. & L. sur, 150 ft from s and e lines. Texas Co., Wichita Falls, Sedwick 1, s 1, blk 1, E. T. Ry sur, 150 ft sw of center of ne line. Less Combest, Mineral Wells, Broyles 1, s 7, L. A. L. sur, se corner. Loggie & Arendt Oil Co., Albany, Blach 3B, 502, T. E. & L. sur, 450 ft from ne and 2400 feet from se line. Roeser & Pendelton, Inc., Fort Worth, Cook A76, s 60, E. T. Ry sur, 1188 ft from n and 1650 ft from e line; C26, same sur, 1044 ft from n and 541 ft from w line; C25, same sur, 220 ft from n and 1323 ft from w line; A8, same sur, 1089 ft from s and 878 ft from w line. Midwest Explo. Co., Amarillo, Mathews 1, s 58, blk 1, E. T. Ry sur, 200 ft from s and e lines. J. P. Harris, Mineral Wells, Mathews 1C, s 57, E. T. Ry sur, 200 ft from n and e lines.

STEPHENS COUNTY—McArthur & Maxwell, Fort Worth, Ledbetter 1, s 23, T. & P. Ry sur, 500 ft from n and e lines.

STONEWALL COUNTY—Sun Oil Co., Dallas, Reynor 1, s 20, blk D, H. & T. C. sur, 348 ft from s and w lines.

THROCKMORTON COUNTY — E. J. McCurdy, Mineral Wells, Reynolds A1, s 19, blk 2, A. B. & M. sur, 650 ft from n and 150 ft from e line. Christie Brothers, Breckenridge, Dickey 1, s 685, T. E. & L. sur, 1800 ft from s and e lines. H. I. Stock et al, Cisco, Cummings 1, s 31, Comanche Res sur, 350 ft from s and e lines. Reiter-Foster Oil Corp., Cisco, Graham 5, 985, T. E. & L. sur, 450 ft from s and e lines.

UPTON COUNTY — Cordova-Union Oil Corp., Fort Worth, Fee 1, s 4, G. C. & S. F. sur, 330 ft from s and w lines.

WICHITA COUNTY—J. E. Keller, Town Park, Waggoner 2B, M. A. Willis sur, 425 ft from w and 150 ft from s line. Harry Hines, Wichita Falls, Griffin 1, H. F. Jordan sur, 150 ft from s and e lines. Burr Lambert, Wichita Falls, Kemp 2, blk 55, W. V. F. L. sur, 450 ft from w and 1239 ft from n line. Eastern Pet. Corp., Wichita Falls, Burnett 15A, s 9, H. T. & B. sur, 412 ft from n and 471 ft from w line. King Royalty Co., Wichita Falls, Mitchell C1. P. Castleman sur, 150 ft from n and e lines. Kimbell & Bostic, Burkburnett, Denny 3, Cowherd sur, 150 ft from n and 450 ft from e line. Hammon & Garrett, Wichita Falls, McCarty A13, S. O. Fowler sur, 300 ft se of No. 10. White & Duncan, Wichita Falls, Goetze B1, s 2, S. A. & M. G. sur, 300 ft e of No. 1. John O'Neil, Wichita Falls, Rio Bravo 29, s 31, blk 5, H. & T. C. sur, 320 ft w of No. 3.

WILBARGER COUNTY — Bass & Dillard, Wichita Falls, Waggoner 3, s 5, blk 5, H. & T. C. sur, 312 ft w of No. 2.Phillips Pet. Corp., Bartlesville, Okla., Waggoner 4, s 47, blk 2, H. & T. C. sur, 330 ft from n and 300 ft from e line. E. B. Lawson, Tulsa, Waggoner 12, s 30, blk 4, H. & T. C. sur, 150 ft from n and e lines; 13, same sur, 200 ft from n and 175 ft from w line. Fain-McGaha Oil Corp., Wichita Falls, Waggoner 1, s 1, S. P. Ry sur, 150 ft from n and e lines. Waggoner 1W, s 32, blk 4, H. & T. C. sur, 150 ft from s and w lines. Consolidated Oil Co., Wichita Falls, Waggoner 11, s 5, blk 5, H. & T. C. sur, 340 ft s of No. 6. Z. R. White, Wichita Falls, Waggoner 1, blk 42, T. D. Purnell sur, 150 ft from n and e lines.

WINKLER COUNTY—Atlantic Oil Prod. Co., Dallas, Hendricks 3, s 44, blk 26, 330 ft from w and 1320 ft from n line. Humble O. & R. Co., Wichita Falls, Hendricks 6, s 39, blk 26, 660 ft w of No. 1; 5, same sur, 1320 ft from n and 330 ft from w line. Roxana and Texas Co., Wichita Falls, T. G. Hendricks, s 39, blk 26, 330 ft from e and 440 ft from s line.

WEBB COUNTY—Magnolia Pet. Co., Dallas, Yeager 6, 5, Las Animas sur, 150 ft from n and e lines; 7, same sur, south central. Valdez 7, 754, same sur, 300 ft e of No. 4. H. I. Fansler, Laredo, Benavides 1, s 664, 2650 ft from n and 150 ft from e line.

WHARTON COUNTY—Weed-Gayle Oil Co., Beaumont, Bay 23, S. F. Austin sur, 193 ft w of No. 12. Gulf Prod. Co., Houston, M. Carson 6, S. F. Austin sur, 200 ft nw of No. 4. Vacuum Oil Co., Houston, Taylor 1, S. F. Austin sur, 508 ft from nw and 300 ft from sw line.

WALLER COUNTY—J. R. Young, Houston, Fee 2, J. Lienda sur, 900 ft from n and 2000 ft from e line.

YOUNG COUNTY — G. E. Maher, Fort Worth, Seddon 1, Garmis sur, 330 ft from n and 150 ft from e line.

Fearis Hi-Pressure

OIL TREATING PLANT

For Treating Crude Oil Emulsions

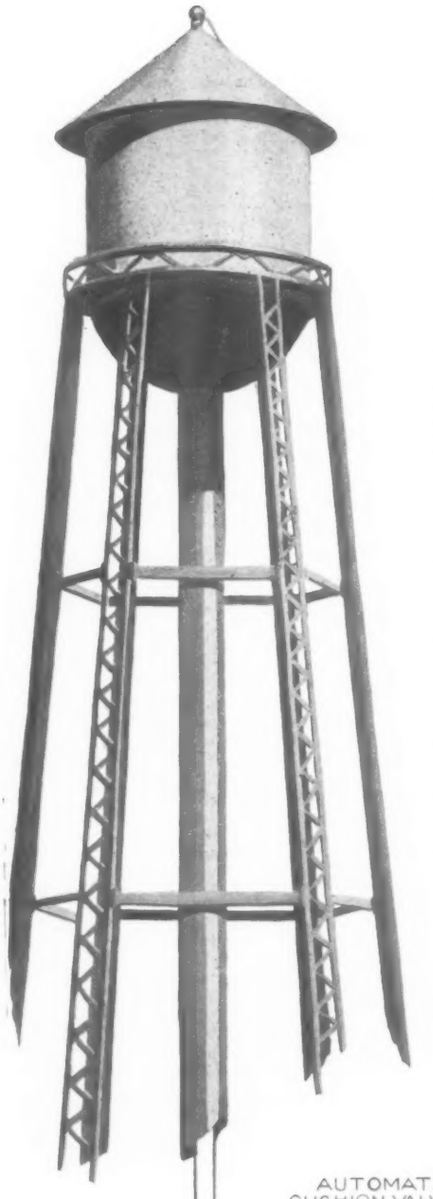
Our plants are treating oil in the Smackover field showing 90% B. S. and water—We have yet to find oil cut so bad that we can not treat it to pipe line product.

Tank bottom B. S. readily handled.
Scarcity of boiler feed water no barrier.
We guarantee to treat your oil or no sale.
Plants sold outright, no royalty.
Something new in a steam dehydrator.
Will handle from 1 to 5000 barrels per day.

Correspondence solicited—Ask for catalogue

FEARIS SEPARATOR CO.

BOX 425 SMACKOVER, ARK.



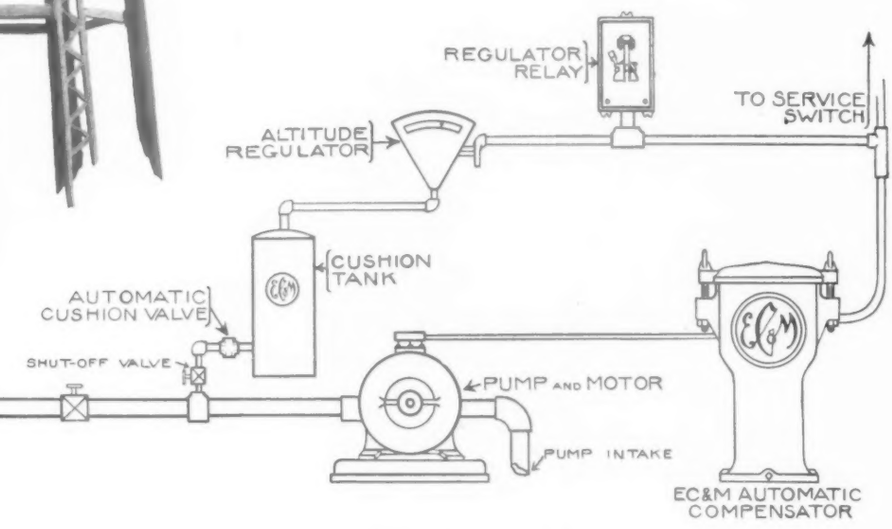
Automatic Control of motor-driven pumps

Electrically driven pumps, whether discharging into storage tanks, pipe lines or pressure systems can be started and stopped automatically as the liquid level or pressure varies, and you will always be assured of faithful pump performance. EC&M Automatic Pump Control is your guarantee.

Your pumping stations can be controlled by EC&M Float Switches or Altitude Regulators through EC&M Oil-immersed Motor Controllers. These starters, in addition to being automatic in operation, are completely oil-immersed, making them flame-proof and, therefore, safe for use in gaseous and explosive atmospheres.

An EC&M Altitude Regulator will maintain the level in a storage tank fifty feet high within limits of one foot. This is done automatically through the electrical contacts in the Regulator which are a part of the circuit that controls the starting and stopping of the pump motor. Equal accuracy of control is obtained in higher tanks and in pipe line or pressure tank pumping.

The EC&M Cushion Tank and Valve installation, as shown in the diagram below, is designed to prevent those pulsations of the Regulator needle which result from surges in the pump discharge line. Spasmodic starting and stopping of the pump motor will not occur where this cushion tank is provided.



Send for Specification Sheets S-21 and S-25

THE ELECTRIC CONTROLLER & MFG. CO.

CLEVELAND, OHIO

NEW YORK-50 CHURCH ST.
CHICAGO-CONWAY BLDG.
DETROIT-DIME BANK BLDG.
BIRMINGHAM-BROWN-MARX BLDG.
CINCINNATI-1ST NATIONAL BANK BLDG.
LOS ANGELES-912 E. THIRD ST.
SALT LAKE CITY-228 SO. W. TEMPLE
TORONTO-REFORD BLDG.
PHILADELPHIA-WITHERSPOON BLDG.
PITTSBURGH-OLIVER BLDG.
SAN FRANCISCO-CALL BUILDING
MONTREAL-DRUMMOND BLDG.
TULSA-217 E. ARCHER ST.

CRUDE OIL PRICE QUOTATIONS

CRUDE PRICE CHANGES

August 2—Magnolia Petroleum Company revised schedule of prices for Mid-Continent; new schedule grades oil down to 25 gravity.

August 2—Atlantic Oil Producing Company revised schedule for North Louisiana and Arkansas, including Homer, Haynesville and West El Dorado fields, leaving 32 to 32.9 gravity the same, $1.16; but decreasing the lower grades by establishing a 7-cent differential down to 27 gravity; and increasing the higher grades by substituting a 5-cent instead of a 3-cent differential. Lower grades of Stephens crude were decreased.

Met by Standard Oil Company of Louisiana and Magnolia Petroleum Company.

July 30—The Texas Company posted schedule for North Louisiana making 24 to 24.9 gravity 76 cents with 5-cent differential up to $1.16 for 32 to 32.9 gravity, and with 3-cent differential beginning with $1.19 for 33 to 33.9 gravity, and extending to $1.75 for 52 gravity and above.

CURRENT POSTINGS

EASTERN STATES

	Aug. 7 1928
New York Transit	$3.05
Bradford District	3.05
National Transit	2.90
Southwest	2.90
Eureka	2.85
Buckeye	2.65
Macksburg	2.80
Gaines	2.60
Somerset	1.55
Cabell	1.45
Ragland	.95
Corning, 35-cent grade	1.45
Corning, 25-cent grade	1.55
Keister	1.20

CENTRAL STATES

Illinois	1.55
Indiana	1.37
Lima	1.60
Plymouth	1.28

Refining Company)*

Below 25 gravity	.60
Princeton	1.55
Waterloo	1.35
Wooster	1.67

WESTERN KENTUCKY

Posted by Stoll Refining Company for crude from Allen, Warren, Franklin, Davies, Barren.

All grades	1.55

MID-CONTINENT

Carter Oil Company and Gulf Refining Company

25. to 25.9 gravity	.67
26 to 26.9 gravity	.74
27 to 27.9 gravity	.81
28 to 28.9 gravity	.88
29 to 29.9 gravity	.95
30 to 30.9 gravity	1.02
31 to 31.9 gravity	1.09
32 to 32.9 gravity	1.16
33 to 33.9 gravity	1.21
34 to 34.9 gravity	1.26
35 to 35.9 gravity	1.31
36 to 36.9 gravity	1.36
37 to 37.9 gravity	1.41
38 to 38.9 gravity	1.46
39 to 39.9 gravity	1.51
40 to 40.9 gravity	1.56
41 to 41.9 gravity	1.61
42 to 42.9 gravity	1.66
43 to 43.9 gravity	1.71
44 and above	1.76

MID-CONTINENT

Magnolia Petroleum Company

Below 25 gravity	.60
25 to 25.9 gravity	.67
26 to 26.9 gravity	.74
27 to 29.9 gravity	.75
30 to 30.9 gravity	.90
31 to 31.9 gravity	1.05
32 to 32.9 gravity	1.16

From 33 to 44 gravity and above, Magnolia Petroleum Company prices are the same as those of Carter Oil Company.

NORTH AND CENTRAL TEXAS

Ranger, North Texas, Mexia, Powell, Richland, Wortham, Currie, Moran, Nocona and Lytton Springs Crude

(Humble Oil and Refining Company and Gulf

25 to 25.9 gravity	.67
26 to 26.9 gravity	.74
27 to 27.9 gravity	.81
28 to 28.9 gravity	.88
29 to 29.9 gravity	.95
30 to 30.9 gravity	1.02
31 to 31.9 gravity	1.09
32 to 32.9 gravity	1.16
33 to 33.9 gravity	1.21
34 to 34.9 gravity	1.26
35 to 35.9 gravity	1.31
36 to 36.9 gravity	1.36
37 to 37.9 gravity	1.41
38 to 38.9 gravity	1.46
39 to 39.9 gravity	1.51
40 to 40.9 gravity	1.56
41 to 41.9 gravity	1.61
42 to 42.9 gravity	1.66
43 to 43.9 gravity	1.71
44 and above	1.76

*Gulf has no posting below 28.

NORTH AND CENTRAL TEXAS

(The Texas Company and Magnolia Petroleum Company)*

	Aug. 7 1928
24 to 24.9 gravity	.60
25 to 25.9 gravity	.67
26 to 26.9 gravity	.74
27 to 27.9 gravity	.81
28 to 28.9 gravity	.88
29 to 29.9 gravity	.95
30 to 30.9 gravity	1.02
31 to 31.9 gravity	1.09
32 to 32.9 gravity	1.16
33 to 33.9 gravity	1.21
34 to 34.9 gravity	1.26
35 to 35.9 gravity	1.31
36 to 36.9 gravity	1.36
37 to 37.9 gravity	1.41
38 to 38.9 gravity	1.46
39 to 39.9 gravity	1.51
40 to 40.9 gravity	1.56
41 to 41.9 gravity	1.61
42 to 42.9 gravity	1.66
43 to 43.9 gravity	1.71
44 and above	1.76

*Magnolia Petroleum Company posts below 28 gravity 81 cents; higher gravity oils according to above schedule.

SOUTH TEXAS

Mirando	1.00

SOMERSET

Grayburg

Below 33 gravity	1.05
33 to 33.9 gravity	1.07
34 to 34.9 gravity	1.09
35 to 35.9 gravity	1.11
36 to 36.9 gravity	1.13
37 to 37.9 gravity	1.15
38 and above	1.17

GULF COAST

Grade "A" all companies	1.20
Gulf Coast Light Oil, below 25	1.15
25 to 25.9 gravity	1.17
26 to 26.9 gravity	1.19
27 to 27.9 gravity	1.21
28 to 28.9 gravity	1.23
29 to 29.9 gravity	1.25
30 to 30.9 gravity	1.27
31 to 31.9 gravity	1.29
32 to 32.9 gravity	1.31
33 to 33.9 gravity	1.33
34 to 34.9 gravity	1.35
35 to 35.9 gravity	1.37
36 to 36.9 gravity	1.39
37 to 37.9 gravity	1.41
38 to 38.9 gravity	1.43

CALIFORNIA CRUDE OIL PRICES AT THE WELL

Following are the current prices offered by Standard Oil Company for crude oil at the well: (Price per barrel of 42 gallons in fields indicated.)

Gravity (degrees)	Signal Hill	Seal Beach	Huntington Beach	Inglewood	Olinda-Brea Canon	Athens-Rosecrans Dominguez	Torrance	Richfield	Whittier La Harbra	Montebello	Coyote Hill	Santa Fee Springs	Newhall McKittrick Kern River	Midway Sunset Elk Hills	Buena Vista Hills	Lost Hills	Coalinga	Wheeler
14-14-9	$ .85	$ .85	$ .85	$ .85	$ .85	$ ..	$ .85	$ .85	$ .85	$ .85	$ .85	$ ..	$ .75	$ .75	$ .75	$ .75	$ .75	$ .75
15-15-9	.85	.85	.85	.85	.85	..	.85	.85	.85	.85	.85	..	.75	.75	.75	.75	.75	.75
16-16-9	.85	.85	.85	.85	.85	..	.85	.85	.85	.85	.85	..	.75	.75	.75	.75	.75	.75
17-17-9	.85	.85	.85	.85	.85	..	.85	.85	.85	.85	.85	..	.75	.75	.75	.75	.75	.75
18-18-9	.85	.85	.85	.85	.85	..	.85	.85	.85	.85	.85	..	.75	.75	.75	.75	.75	.75
19-19-9	.85	.85	.85	.85	.85	..	.85	.85	.85	.85	.85	..	.75	.75	.75	.75	.75	.75
20-20-9	.85	.85	.85	.85	.85	..	.85	.85	.85	.85	.85	..	..	.77	.77	.77	.76	.76
21-21-9	.86	.86	.86	.86	.86	..	.86	.86	.85	.85	.86	.85	..	.79	.79	.79	.77	.77
22-22-9	.87	.87	.87	.87	.87	..	.87	.87	.85	.85	.87	.85	..	.81	.81	.81	.78	.78
23-23-9	.88	.88	.88	.88	.88	..	.88	.88	..	.85	.88	.85	..	.83	.83	.83	.79	.79
24-24-9	.89	.89	.89	.89	.89	..	.89	.89	..	.85	.89	.85	..	.85	.85	.85	.80	.80
25-25-9	.90	.90	.90	.90	.90	.90	.90	.90	..	.86	.90	.86	..	.87	.87	.87	.81	.81
26-26-9	.92	.92	.92	.92	.92	.92	.92	.92	..	.87	.91	.87	..	.89	.89	.89	.83	.83
27-27-9	.94	.94	.94	.94	.94	.94	.94	.94	..	.88	.92	.88	..	.91	.91	.91	.85	.85
28-28-9	.96	.96	.96	.96	.96	.96	.96	.96	..	.89	.93	.89	..	.93	.93	.93	.87	..
29-29-9	.98	.98	.98	..	.98	.98	..	1.00	..	.91	.95	.93	..	.95	.99	.99	.91	..
30-30-9	1.00	1.00	1.00	..	1.00	1.00	..	..	..	..	..	.95	..	1.02	1.02	1.02	.93	..
31-31-9	1.03	1.03	1.03	..	..	1.03	..	..	..	..	..	.97	..	1.05	1.05	1.05	.95	..
32-32-9	1.06	1.06	1.06	..	..	1.06	..	..	..	..	..	.99	..	1.08	1.08	1.08	.97	..
33-33-9	..	..	..	..	..	1.09	..	..	..	..	..	1.01	..	..	..	1.11	.99	..
34-34-9	..	..	..	..	..	1.12	..	..	..	..	..	1.03	..	..	..	..	1.01	..
35-35-9	..	..	..	..	..	1.15	..	..	..	..	..	1.06	..	..	..	..	..	..
36-36-9	..	..	..	..	..	1.18	..	..	..	..	..	1.09	..	..	..	..	..	..
37-37-9	..	..	..	..	..	1.21	..	..	..	..	..	1.12	..	..	..	..	..	..
38-38-9	..	..	..	..	..	1.24	..	..	..	..	..	1.15	..	..	..	..	..	..
39-39-9	..	..	..	..	..	1.27	..	..	..	..	..	..	..	..	..	..	..	..
40-40-9	..	..	..	..	..	1.30	..	..	..	..	..	..	..	..	..	..	..	..
41-41-9	..	..	..	..	..	1.33	..	..	..	..	..	..	..	..	..	..	..	..
42-42-9	..	..	..	..	..	1.36	..	..	..	..	..	..	..	..	..	..	..	..

"Petreco"

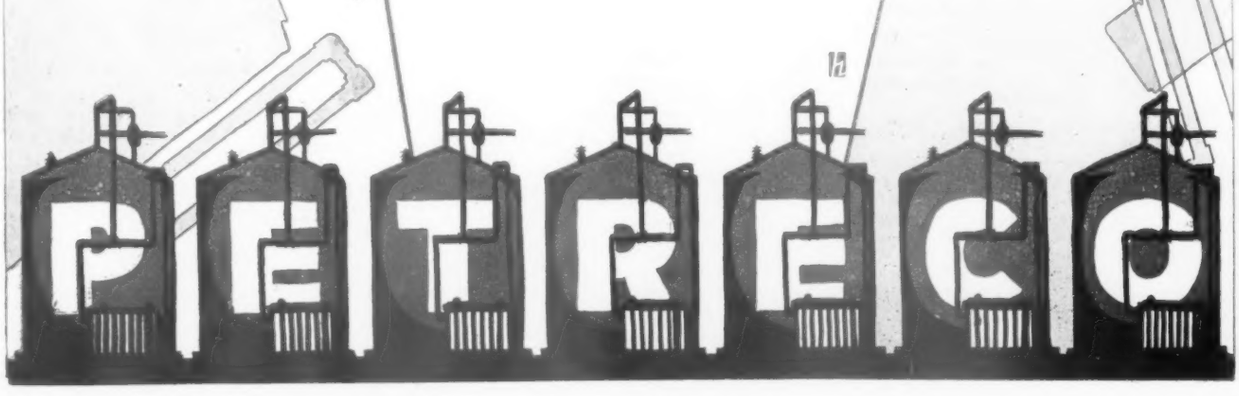
The universal success of the "Petreco" electrical process of dehydrating crude oil emulsions is truly remarkable. Millions of barrels of crude have been cleaned by this method. The plants in operation are handling emulsions varying in gravity from 11° to 40° Baumé, having water content as high as 85%. The cleaned oil contains not to exceed 2% total water content, and very often below one-half of one per cent.

If you have "cut oil" problems, write us. Our booklet "The Electrical Process for the Dehydration of Crude Oil Emulsions," containing table showing the increase in Baumé gravity of oil after treating and other valuable information will be sent to you on request.

PETROLEUM RECTIFYING COMPANY of CALIFORNIA

Security Title Insurance Bldg. 530 West 6th Street, Los Angeles, Calif.

Petroleum Bldg. Houston, Texas



	Aug. 7 1928
39 to 39.9 gravity	1.45
40 and above	1.47

*Humble Oil & Refining Company's postings on Gulf Coast Light stop at 35 to 35.9. Its price on all crudes above 35 to $1.37 per barrel. Magnolia Petroleum Company's postings stop at 31 to 31.9.

The Texas Company

MARKHAM

All grades	1.00

LULING

All grades	1.00

PANHANDLE

GRAY COUNTY

(Humble Oil and Refining Company, Magnolia Petroleum Company and Gulf Refining Company)

Below 29 gravity	.68
29 to 29.9 gravity	.75
30 to 30.9 gravity	.82
31 to 31.9 gravity	.89
32 to 32.9 gravity	.96
33 to 33.9 gravity	1.01
34 to 34.9 gravity	1.06
35 to 35.9 gravity	1.11
36 to 36.9 gravity	1.16
37 to 37.9 gravity	1.21
38 to 38.9 gravity	1.26
39 to 39.9 gravity	1.31
40 to 40.9 gravity	1.36
41 to 41.9 gravity	1.41
42 to 42.9 gravity	1.46
43 to 43.9 gravity	1.51
44 and above	1.56

WHEELER COUNTY

(Humble Oil and Refining Company and Magnolia Petroleum Company)

Below 30 gravity	.65
30 to 30.9 gravity	.72
31 to 31.9 gravity	.79
32 to 32.9 gravity	.86
33 to 33.9 gravity	.91
34 to 34.9 gravity	.96
35 to 35.9 gravity	1.01
36 to 36.9 gravity	1.06
37 to 37.9 gravity	1.11
38 to 38.9 gravity	1.16
39 to 39.9 gravity	1.21
40 to 40.9 gravity	1.26
41 to 41.9 gravity	1.31
42 to 42.9 gravity	1.36
43 to 43.9 gravity	1.41
44 and above	1.46

CARSON-HUTCHINSON COUNTIES

(Humble Oil and Refining Company, Magnolia Petroleum Company and Gulf Refining Company)

Below 32 gravity	.69
32 to 32.9 gravity	.76
33 to 33.9 gravity	.81
34 to 34.9 gravity	.86
35 to 35.9 gravity	.91
36 to 36.9 gravity	.96
37 to 37.9 gravity	1.01
38 to 38.9 gravity	1.06
39 to 39.9 gravity	1.11
40 to 40.9 gravity	1.16
41 to 41.9 gravity	1.21
42 to 42.9 gravity	1.26
43 to 43.9 gravity	1.31
44 and above	1.36

WEST TEXAS

(Humble, Gulf, Magnolia, The Marland Company and Southern Crude Oil Purchasing Company)*

Crane-Upton, Crockett, Pecos and Winkler Counties, all grades	.65

*Gulf does not post in Winkler County; Magnolia posts in Crane, Upton and Winkler Counties and that part of Glasscock not included in the Chalk field. The Marland Company posts only in Crane, Upton and Crockett Counties; Southern posts only in Crane, Upton and Winkler Counties.

(Magnolia Petroleum Company)

Mitchell County	$ .80
Howard-Glasscock County (shallow)	.80
Howard-Glasscock County (deep)	.60

Col-Tex Refining Company

Howard and Mitchell Counties	$ .80

WYOMING-MONTANA

Wyoming

	Aug. 7 1928
Byron	1.33
Ferris	1.60
Elk Basin	1.48
Grass Creek	1.48
Rock Creek	1.33
Lost Soldier	.95
Lance Creek	1.48
Mule Creek	1.10
Notches	.65
Big Muddy	1.33
Osage	1.33
Hamilton Dome	.85
Pilot Butte	1.75
Torchlight-Greybull	1.33
Lander	.80
Simpson Ridge	.80
Rex Lake	1.10
South Casper Creek-Poison Spider	1.00

Salt Creek

Midwest Refining Company

29 to 29.9 gravity	1.14
30 to 30.9 gravity	1.16
31 to 31.9 gravity	1.18
32 to 32.9 gravity	1.20
33 to 33.9 gravity	1.22
34 to 34.9 gravity	1.24
35 to 35.9 gravity	1.26
36 to 36.9 gravity	1.28
37 and above	1.30

MONTANA

Sunburst	$1.65
Cat Creek	1.33
Lake Basin	2.20

NEW MEXICO

Artesia	1.08
Hogback	1.38

CANADA

Oil Springs	2.07
Petrolia	2.00

NORTH LOUISIANA

(The Texas Company)

24 to 24.9 gravity	.76
25 to 25.9 gravity	.81
26 to 26.9 gravity	.86
27 to 27.9 gravity	.91
28 to 28.9 gravity	.96
29 to 29.9 gravity	1.01
30 to 30.9 gravity	1.06
31 to 31.9 gravity	1.11
32 to 32.9 gravity	1.16
33 to 33.9 gravity	1.19
34 to 34.9 gravity	1.22
35 to 35.9 gravity	1.25
36 to 36.9 gravity	1.28
37 to 37.9 gravity	1.31
38 to 38.9 gravity	1.34
39 to 39.9 gravity	1.37
40 to 40.9 gravity	1.40
41 to 41.9 gravity	1.43
42 to 42.9 gravity	1.46
43 to 43.9 gravity	1.49
44 to 44.9 gravity	1.52
45 to 45.9 gravity	1.55
46 to 46.9 gravity	1.58
47 to 47.9 gravity	1.61
48 to 48.9 gravity	1.64
49 to 49.9 gravity	1.67
50 to 50.9 gravity	1.70
51 to 51.9 gravity	1.73
52 and above	1.76

LOUISIANA-ARKANSAS

Homer, Haynesville, Caddo, El Dorado, De Soto and Crichton and Cotton Valley**

(Atlantic Oil Producing Company, Standard of Louisiana, and Magnolia Petroleum Company)

27 to 27.9 gravity	.81
28 to 28.9 gravity	.88
29 to 29.9 gravity	.95
30 to 30.9 gravity	1.02
31 to 31.9 gravity	1.09
32 to 32.9 gravity	1.16
33 to 33.9 gravity	1.21
34 to 34.9 gravity	1.26
35 to 35.9 gravity	1.31
36 to 36.9 gravity	1.36
37 to 37.9 gravity	1.41
38 to 38.9 gravity	1.46
39 to 39.9 gravity	1.51
40 to 40.9 gravity	1.56
41 to 41.9 gravity	1.61
42 to 42.9 gravity	1.66
43 to 43.9 gravity	1.71
44 gravity and above	1.76

*Shreveport-Eldorado's postings stop at above 40 gravity.

**Below 36 gravity, the posting on Cotton Valley is 75 cents. From 36 to 52 and above the regular gravity schedule is followed.

STEPHENS

(All Companies)

Below 28 gravity	.75
28 to 28.9 gravity	.79
29 to 29.9 gravity	.83
30 to 30.9 gravity	.87
31 to 31.9 gravity	.91
32 gravity and above	.95

SMACKOVER

(All Companies)

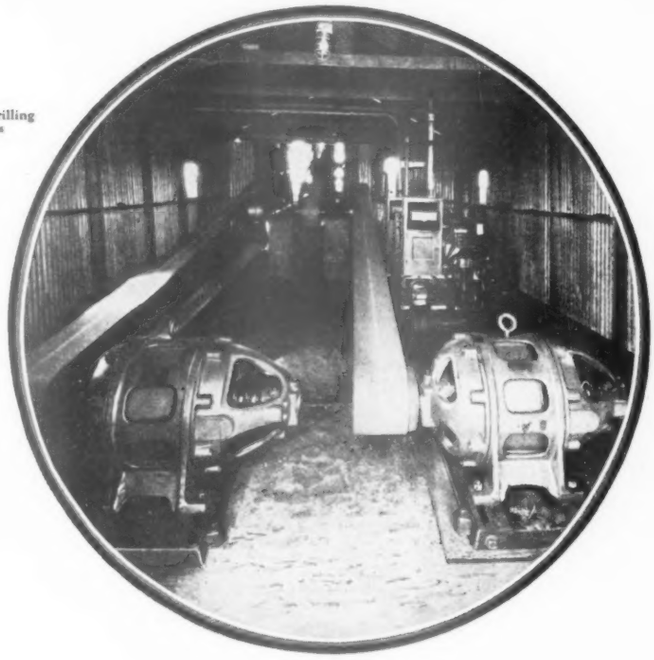
Below 24 gravity	.75
24 and above	.90
Bellevue	1.25
Jennings	1.15
Vinton	1.30
Edgerly	1.30
Starks Dome	1.30
Urania	.85
Calion	.75

IMPORTS OF PETROLEUM AT PRINCIPAL UNITED STATES PORTS

American Petroleum Institute Figures (Barrels of 42 gallons)

	Week July 28	July 21
ATLANTIC COAST PORTS—		
Baltimore	153,000	228,000
Boston	71,000	233,000
New York	890,000	886,000
Philadelphia	241,000	191,000
Others	.....	180,000
Total	1,355,000	1,718,000
Daily average	193,571	245,429
Daily average four weeks ended	244,714	244,429
AT GULF COAST PORTS—		
Galveston District	85,000	60,000
New Orleans and Baton Rouge	175,000	195,000
Port Arthur and Sabine District	.....	.....
Tampa	19,000	.....
Total	279,000	255,000
Daily average	39,857	36,429
AT ALL UNITED STATES PORTS—		
Total	1,634,000	1,973,000
Daily average	233,428	281,858
Daily average four weeks ended	244,714	244,429

Typical Westinghouse Twin-Motor Drilling Installation in Crane County, Texas



Speed

and control

IT'S speed, control and endurance—with a good change of pace—that helps pitchers to win ball games. It's dependable and consistent performance, particularly when the going is the hardest, that keeps some pitchers in the select class.

To be successful, drilling equipment must also have these dependable characteristics. It must have the stamina and lasting qualities to meet the strenuous requirements of oil field operations.

When Westinghouse Twin-Motor drilling equipment is once installed, operators can feel assured of a winning combination. It is a sturdy, two-fisted unit that was designed especially for oil field service.

Starting, stopping, reversing, and close speed adjustment can be controlled instantly from the derrick floor. Perfect motion is assured at all depths of the hole. Tools can be pulled more quickly and surely, thereby saving considerable time in actual drilling operations.

Twin-Motor Drilling Equipment

Westinghouse Electric & Manufacturing Company
East Pittsburgh Pennsylvania
Sales Offices in All Principal Cities of the United States and Foreign Countries

Westinghouse

X97137

COMPLETIONS FOR PAST WEEK IN U.S. FIELDS

SUMMARIZED REVIEW OF FIELD RESULTS

State—	Completions This Week	Completions Last Week	Producers This Week	Producers Last Week	Gas Wells This Week	Gas Wells Last Week	Failures This Week	Failures Last Week	Initial Production This Week	Initial Production Last Week
Arkansas	..	13	..	7	..	1	..	5	...	1,046
California	12	14	12	13	..	..	..	1	18,625	14,120
Illinois	2	..	1	..	..	..	1	..	7	...
Indiana	5	6	4	3	..	..	1	3	68	37
Kansas	14	17	5	7	3	2	6	8	690	647
Kentucky	31	19	21	18	1	1	9	..	924	911
Louisiana	8	22	3	6	..	7	5	9	1,810	830
Michigan	5	4	3	2	2	..	..	2	490	300
Ohio	21	19	11	13	1	4	9	2	203	1,976
Oklahoma	61	71	37	37	8	12	16	22	6,210	13,356
Pennsylvania	2	32	2	23	..	3	..	6	8	85
Tennessee	1	..	1	..	..	..	..	..	400	...
Texas	139	132	91	76	7	3	41	53	257,220	122,940
West Virginia	29	31	8	8	16	18	5	5	99	82
Total	330	380	199	213	38	51	93	116	286,754	156,330
Increase this week	..	..	..	..	..	..	..	..	130,424	...
Decrease this week	50	..	14	..	13	..	23	..	...	...

CALIFORNIA

Company, well and Location	Initial Production Bbls.	Depth
LONG BEACH—		
General Pet. Co., Signal 2	1200	7360
Shell Co., Dobyns 5	1800	6952
Sovereign Oil Co. No. 2	500	6176
The Petroleum Co., Rissman 1	1100	7337
Fred Fitch No. 2	1500	6235
A. T. Jergins, Municipal 3	2200	7223
MIDWAY—		
Chanslor-Canfield Midway Oil Co., No. 4, 7-32-23	3500	3003
ROUND MOUNTAIN—		
Shell Co., Freeman 1, 20-28-29	175	1825
SANTA FE SPRINGS—		
Wilshire Oil Co., Buckbee 1, wo	2800	6000
VENTURA—		
Shell Co., Taylor 6	1050	6336

OKLAHOMA

Company, well and Location	Initial Production Bbls.	Depth
BECKHAM COUNTY—		
Sayre Oil & Ref. Co., Davis 1, swc nw, 24-9n-23w	¶20	2680
CARTER COUNTY—		
Boring et al Walker 4, swc se nw, 10-4s-2w	100	2020
Walker 3, nec sw se nw, 10-4s-2w	150	2421
Wirt Franklin Pet. Corp., Bumpass 2, nw sw se, 33-1s-3w	25	3282
COAL COUNTY—		
I. T. I. O. Co., Cook 1, swc nw, 10-1n-11e	*	1975
COTTON COUNTY—		
Cullum & Jenkins, Priddy 3, nec nw ne ne, 3-2s-10w	20	2195
Moore et al, Moore 1, nec. sw, 2-2s-10w	80	2179
CREEK COUNTY—		
Madden & Madden et al, Wright 1, nwc sw se, 13-15-9e	625	3396
Bryan & Emery, Fulsom 1, nwc sw, 8-16-11e	50	2792
Henry & Avers, Harris 4, c se se, 12-17-10e	45	1907
Bu Vi Bar Pet. Co., Bighead 1, nw se se, 20-17-7e	100	2809
John Hayden, Futrell 3, nwc se se, 1-19-9e	*	2074
GARVIN COUNTY—		
Magnolia, Harris 6, se sw nw, 16-1n-3w	60	1749
GRADY COUNTY—		
Commerce Dev. Co., Pond 3, sw nw sw, 13-4n-8w	¶30	2304
Magnolia, Kit Farwell 7, sw nw se, 26-5n-8w	¶38	2380
Commerce Dev. Co., Crisman 1, c ne ne, 21-4n-7w	*	3310
KAY COUNTY—		
Comar Oil Co., McCullough 1, swc se, 5-25-1w	*	1770
Burnham & McGraw, Alberty 3, nwc sw se se, 32-29-1e	*	505
LINCOLN COUNTY—		
Willis O. & G. Co., Gum 1, nwc se, 20-17-3e	*	4752
LOGAN COUNTY—		
Roxana, Rouse 1A, swc, 20-19-4w	430	6098
Schranck 2, nec, 30-19-4w	¶1	5035
MAYES COUNTY—		
Bradley & Reynolds, Severs 1, nwc ne ne ne, 2-21-18e	*	640
MUSKOGEE COUNTY—		
J. Braemer, Callahan 1A, ecl nw nw, 18-14-19e	*	814
L. S. Bout, Helmer 1, sec sw ne, 6-14-19e	*	817
W. D. Cameron, Manuel 1, esl nw nw, 6-14-17e	*	1919
Shaffer & Heflin, Robeson 1, sec, 36-15-18e	*	950
Reiter-Foster Oil Corp., Childers 4, c nw sw, 21-7-16e	*	1043
W. I. Metzger et al, Francis 2, ewl e½ w½ sw, 1-14-18e	106	959
H. L. Jolly, Vanderslice 7, nec se, 30-15-15e	10	1565
OKFUSKEE COUNTY—		
W. L. Umbrum, Tiger 5, cnl se nw, 2-10-11e	75	1795
Tiger 2, cnl ne nw, 2-10-11e	25	1765
OKMULGEE COUNTY—		
Papoose Oil Co., Rainey 9, cwl ne sw, 21-15-11e	30	2180
Sheldon Oil Co., et al, Skelton 3, cnl sw se, 15-13-12e	65	2893
J. H. Rebold, Benson 1A, sec sw, 3-14-11e	10	1918
Curtis Oil Co., Replogle 1, nwc ne, 12-15-12e	30	1297
OSAGE COUNTY—		
Okla. Nat. Gas Co., 786, sec, 10-21-10e	¶1	1717
Glint Moore Estate & Ohio Osage Oil Co., 5, swc ne sw, 9-21-9e	10	419
Osage Gas Prod., 389, sec ne ne nw, 32-24-12e	¶2	1034
Peters Pet. Co., 4, swc nw, 26-25-9e	125	2188
Kewanee O. & G. Co., 11, swc ne ne, 28-27-5e	130	2968
M. F. Breene, 1, nec, 3-28-10e	10	1834
PAWNEE COUNTY—		
Fortner et al, Mitchell 1A, cwl nw se, 27-20-9e	¶1	1915
Bird, Hanley & Sheady, Gifford 1, nec	*	2927
Interocean Oil Co., McGee 1, ne se 23-7-4e	1997	4128
Gypsy, Cecil 5, se sw ne, 19-7-4e	30	3977
Magnolia, Robbins 3, sec, 15-7-4e	275	3923
Stogner et al, St. Louis Townsite 1, swc, 14-7-4e	¶21	2846
Indep. O. & G. Co., and Darby Pet. Co., Wallace 3, swc, 14-7-4e	60	4030
Magnolia, Harper 2, nec sw, 25-7-3e	*	4442
SEMINOLE COUNTY—		
Gypsy Peter 6, sw ne nw, 18-5-8e	400	2720
Peter 5, se ne nw, 13-5-8e	400	2690
Peter 1, ne se nw, 13-5-8e	400	2698
Anderson & Pritchard Culley 3, swc ne, 18-5-8e	400	2615
Sands Pet Co., Harrison 1, swc se, 4-7-7e	350	4319
Magnolia, Sparks 9, nwc sw, 11-9-5e	40	3567
Superior Oil Co., Walker 2, sw ne ne, 2-9-5e	272	4448
STEPHENS COUNTY—		
Pace et al, Bristowe 3A, nwc se ne nw, 18-2s-7w	300	1502
Magnolia, Burk 8, swc ne nw ne, 34-1s-8w	25	1662
Harry Hanbury, Taliferro 2, se ne se, 28-1s-8w	50	2202
TULSA COUNTY—		
Thompson & Black, Jenkins 5, swc nw, 10-16-12e	*	2500
Riverland Oil Co., Unallotted 1, se ne ne, 4-19-11e	*	2283
WAGONER COUNTY—		
A. K. Creighton, Childers 3, swc nw, 22-18-17e	*	350

KANSAS

Company, well and Location	Initial Production Bbls.	Depth
BUTLER COUNTY—		
Empire, Cranston 3, nw sw se, 22-27-5e	160	2751
Hutchinson B2, nw sw ne, 27-27-5e	100	2752
Garden et al, Sluss 3A, ne sw ne, 6-27-6e	350	2746
COWLEY COUNTY—		
Kentucky Nitrogen & Oxygen Co., Townsite 2, center of lot 15, Dexter Townsite, 18-33-7e	¶1	993
Townsite 3, lot 9, blk 2, Dexter Townsite, 13-33-6e	*	998
McCullough et al, King 1, nwc sw, 22-31-4e	*	2430
GREENWOOD COUNTY—		
Globe Oil Co., Konlad 2, nwc sw, 15-26-13e	*	1550
Ward & McGinnis, Finch 1, nec sw, 11-26-12e	*	1720
Simmons et al, Calvert 1, nec ne, 1-23-12e	*	1785
MARION COUNTY—		
Phillips Pet. Co., McCoy 1, nw ne se, 14-17-4e	50	2381
Youker & Hoffman, Martin 1, sec sw, 3-17-4e	30	2393
McPHERSON COUNTY—		
Gardner Oil Co., Benson 1, c nw sw, 32-18-2w	¶7	2988
SEDGEWICK COUNTY—		
Western Oil Corp., Howard 1, nec se, 29-29-2e	*	3576
SUMNER COUNTY—		
De Forrest Drlg. Co., Mosher 1, swc ne ne ne, 35-30-2w	¶3	1926

EASTERN STATES

SOUTHEASTERN OHIO

Company, well and Location	Initial Production Bbls.	Depth
NOBLE COUNTY—		
Joseph Estadt & Co., Williamson 7	2	....
Theodore Crum & Co., Crum 1	*	....
H. E. Hayes & Co., Hayes 1	*	....
WASHINGTON COUNTY—		
G. W. Spohn & Co., Bowersock 3	2	....
F. C. Meister & Co., Burge 9	*	....

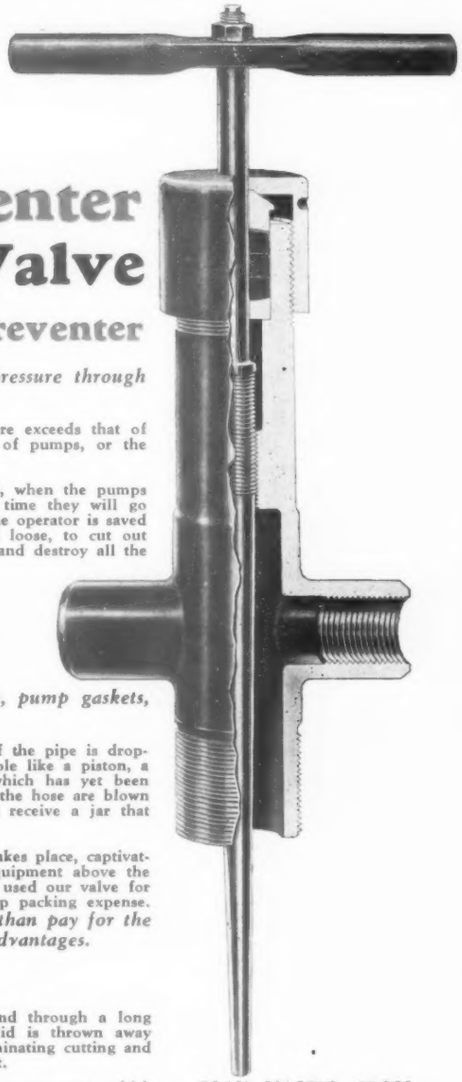
CENTRAL OHIO

Company, well and Location	Initial Production Bbls.	Depth
PERRY COUNTY—		
Dun Mar Oil & Gas Co., Ewing 1	*	....
Star Pottery Co., Fee 1	40	....
Marathone Oil Co., McConagle 1	20	....
Ohio Fuel Gas Co., Laizaler 1	*	....
Schull, Miller & Co., Milligan 1	*	....
LICKING COUNTY—		
Preston Oil Co., Wright 3	18	....
Farmer & Rugg, Wright 5	5	....
MEIGS COUNTY—		
Carnahan Farm Oil Co., Carnahan 1	15	....
VINTON COUNTY—		
Co-operative Oil Co., Beckley 5	5	....
HOLMES COUNTY—		
Logan Gas Co., Manchester 2	¶3½	....
ATHENS COUNTY—		
Cook & Co., Milligan 1	*	....

GRAY

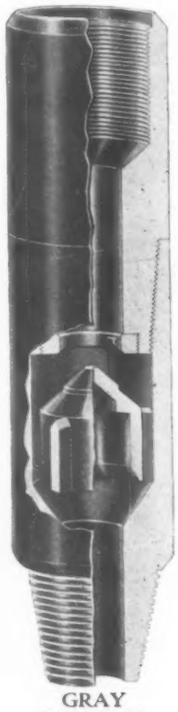
Automatic

Inside Blow Out Preventer
Control Valve—Float Valve



GRAY MASTER CROSS
For use in flowing well through drill pipe in connection with Gray Automatic Inside Blow Out Preventer.

As an Inside Blow Out Preventer



GRAY CONTROL VALVE

Prevents well blowing out and controls all back pressure through drill pipe

The valve will automatically close when the well pressure exceeds that of the pump, allowing repacking of the pump, compounding of pumps, or the bringing of higher pressure equipment onto the job.

It is to be expected, while fighting a high pressure well, when the pumps are called upon to put out all they have, that this is the time they will go down. At this time the Gray Control Valve will close, and the operator is saved the blowing out of hose or pump gasket, turning the well loose, to cut out whatever equipment it flows through and possibly catch fire and destroy all the equipment on the floor.

As a Control Valve

Positively eliminates the blowing out of drill hose, pump gaskets, and swivel packing

When spudding the drill is necessary, and the weight of the pipe is dropped, driving ahead of it a gummed up bit which fits the hole like a piston, a pressure is created which far exceeds that of any pump which has yet been employed in rotary drilling. It is during this operating that the hose are blown off and pump and swivel packings, valves, and other parts receive a jar that strains them to a point that they give way.

The Gray Control Valve will close when this operation takes place, captivating this pressure within the drill pipe, and relieving all equipment above the rotary of this excessive strain. One large operator, who has used our valve for over two years shows a saving of half their hose and pump packing expense. *The savings in hose and packings alone will more than pay for the valve, to say nothing of all the other savings and advantages.*

As a Float Valve

It is designed along correct and scientific principles, and through a long period of experimentation, in such a manner that the fluid is thrown away from the ground surfaces of the valve and seat, thereby eliminating cutting and making possible long periods of service without replacement.

You will be agreeably surprised at the savings in replacement parts which you will derive from the use of this valve.

GRAY
TOOL COMPANY
HOUSTON – TEXAS

Mail It Now!

Date .....

GRAY TOOL COMPANY,
Houston, Texas
Dear Sirs:

Without obligation, please send me **NEW** folder on your NEW Blow Out Preventer.

NAME .....

ADDRESS .....

PENNSYLVANIA

Company, well and Location	Initial Production Bbls.	Depth
GREENE COUNTY—		
Dunn Mar Oil & Gas Co., Null ...1	4	3450
Manufacturers Light & Heat Co., Hughes 2	4	....

WEST VIRGINIA

BOONE COUNTY—		
Edwin Moore, Price Hrs. 1	¶1	....
United Fuel Gas Co., Chew 1	¶1	....
Horse Creek Coal Co. 19	¶1	....
Owens Bottle Machine Co., Safe Deposit Co. 5	¶1	....
Brown 2	¶¼	....
Hatfield 2	¶¼	....
LINCOLN COUNTY—		
Columbia G. & E. Co., Roberts 1..	¶½	....
L. R. Sweetland, Puckett 34	¶½	....
Woodall 32	¶½	....
ROANE COUNTY—		
South Penn Oil Co., Stockley 75...	45	....
N. Beattie, Smith 5	5	....
RITCHIE COUNTY—		
Hendershot & Co., Jackson 1	10	....
Smith & Bickel, Becker 2	¶½	....
CALHOUN COUNTY—		
United Carbon Co., Starkey 1	*	....
Sycamore Fuel Co., Trippett 1	5	....
PLEASANTS COUNTY—		
Neely & Co., Wagner 1	*	....
George Pickens & Co., Kester 2	2	....
KANAWHA COUNTY—		
Chartiers Oil Co., Sheffler 1	¶½	....
Meade & Smith, Knight 1	*	....
CABELL COUNTY—		
W. Va. Gas Corp., Morrison 16...	¶¼	....
Ludher Bros., Lusher 1	¶¼	....
MINGO COUNTY—		
Red Jacket Coal & Coke Co., Fee 3	25	1112
MONONGALIA COUNTY—		
West Penn Gas Co., Renner 1	5	....
WOOD COUNTY—		
T. J. Rothwell, Freshwater 3	2	....
HARRISON COUNTY—		
Clarksburg Light & Heat Co., Lanham 1	¶1½	....
LEWIS COUNTY—		
Jane Lew Gas Co., Mt. Hebron Church Lot 1	¶1¼	....
DODDRIDGE COUNTY—		
Charles Piggott & Co., Davis 1....	¶½	....
WETZEL COUNTY—		
Hope Const. & Ref. Co., Midcap 1..	*	....
MARION COUNTY—		
Owens Bottle Machine Co., Arnett 1	*	....

KENTUCKY

BRECKENRIDGE COUNTY—		
Stockwell & Co., Deane 1	10	....
Deane 2	10	....
Lang, Hinshaw & Co., Moerman 1..	15	280
WAYNE COUNTY—		
Dewey Oil Co., Gregory 11	3	....
Coffey Oil Co., Davenport 1	*	....
JOHNSON—MAGOFFIN COUNTIES—		
Hupp, Duff & Co., Whitt 1, tr 9...	30	....
Wagner & Mathews, Fairchilds Hrs 2	15	....
ESTILL COUNTY—		
Superior oil Corp., West &Co., 14....	*	....
Tyree 22	3	....
McEldowney, Bowser & Co., Reed Hrs 5	3	....
Trackett 1	*	....
DAVIESS COUNTY—		
M. S. & W. Synd. Fields 4	110	....
D. C. Stimson & Co., Mayfield 2 ...	20	....
Dug. Bolling & Co., Roby 3	25	....
Ohio Oil Co., Roby 6	35	....
F. J. Birk, Roby 2	35	....
Thompson & Tremor, Miles 6	25	....
Cumberland Pet. Co., Bennett 1 ...	*	....
OHIO COUNTY—		
J. C. Ellis & Co., Daniels 10	100	....
Daniels 11	100	....
Griffith Hrs 6	150	....
Cundiff 1	100	....
Weller 26	100	....
Hoagland 8	*	....
Becker & Bigler, Hendricks 1	30	565
Wood Oil Co., Maddox 1	¶¼	....
Mitchell 1	¶½-5	....
Cumberland Pet. Co., Phillips 2	*	....
Hamilton 12	*	....
Rex-Pyramid Oil Co., Ambrose 4 ...	*	....
Buckner & Ford, Greer 1	*	....
SENECA COUNTY—		
T. G. O'Brien, Sendelbach 3	60	1382
J. H. Murphy & Son, Hunker 2	25	1396

NORTHWESTERN OHIO

Company, well and Location	Initial Production Bbls.	Depth
Robert Maybier, Knight 1	*	1640
Miller & Co., Miller 1	*	1794
WOOD COUNTY—		
G. L. Haubert & Co., Jackson 8...	15	1256

INDIANA

SPENCER COUNTY—		
William Kern, Pace 1	15	....
George F. Elliott & Co., Stuteville 1	15	1004
SULLIVAN COUNTY—		
Siosi Oil Corp., Williams 2	30	2211
H. B. Millican & Co., Corbin 1	*	2360
ADAMS COUNTY—		
William Kelley & Co., Stanley 2 ...	8	....

ILLINOIS

WABASH COUNTY—		
Adams Corner Oil Co., Smith 7	7	1052
CRAWFORD COUNTY—		
Frost Oil Co., Mann 7	*	907

MICHIGAN

MUSKEGON COUNTY—		
Muskegon Oil Corp., Heinz 3	300	....
Reed Oil Co., Heinz 1	¶3	....
Dixie Oil Co., Becker 1	¶2-100	2100
Figge 4	40	....
Figge 6	50	....

TENNESSEE

CLAY COUNTY—		
Ava Oil & Gas Co., Brown 1	400	....

SOUTH LOUISIANA

EDGERLY—		
Gilmer Oil Co., Fairchilds 1	*	2490
EVANGELINE—		
Cline, Smith & Cline, Lucy Wilson 3	10	1850
VINTON—		
Vinton Pet. Co., Harmony 16	*	2580

TEXAS

TEXAS GULF COAST

BATSON—		
Adabelle Oil Co., Honeymoon 120..	20	500
BIG CREEK—		
Navarro Oil Co., Hausler 1	1200	3225
BLUE RIDGE—		
Moody Corp., West-Schenck 1	1000	2980
GOOSE CREEK—		
Humble, Gaillard-Penn 30	140	4320
ORANGE—		
Orange Pet. Co., Chesson 12	*	4280
PIERCE JUNCTION—		
Moody Corp., Settegast B-2	*	5650
Smith et al, Parsons 3	1020	4725
SARATOGA—		
Rio Bravo Oil Co., Jardit 80	60	1200
SOUR LAKE—		
Lake Graham Oil Co., Bashara 17..	50	2165

TEXAS PANHANDLE

CARSON COUNTY—		
Skelly Oil Co., H. Schaefer 9.....	240	3050
GRAY COUNTY—		
Gibson Oil Corp., Bowers 9	250	3105
Hickory O. & G. Co., J. W. Lester 1	40	2868
The Texas Co., A. Chapman 3-A....	1000	2885
L. R. Travis et al, Morse 1	¶3	2630
L. H. Webb 1	55	2943
Washoma O. & R. Co., R. Smith 1..	175	3178
HARTLEY COUNTY—		
Amarillo Oil Co., Lee Bivins 8-A ..	¶50	3211
MOORE COUNTY—		
Amarillo Oil Co., Thompson-Amarillo 1	¶3	3398
WHEELER COUNTY—		
J. J. Rook et al, S. R. McDonald 1..	*	4640

NORTH TEXAS

ARCHER COUNTY—		
Arco Oil Co., Perkins 5	35	1032
Barnsdall Oil Co., Wilson 6-A	130	1707
Brown & Lickey, Dempsey 1	*	1552
Lester Burns & Humble, Harris-Golden 1	*	1603
C. W. Gilliland et al, Hayter 1	*	1503
Gulf Prod. Co., S. K. Key 1	*	1540
W. O. Hayter, 2-A	45	1394
Harold Kellcher et al, Turbeville 1	*	1553
Long & Texas Co., Richardson 1 ...	20	1264
Petroleum Prod. Co., Wilson 1-G....	*	1609
Stump & Hines, Perkins 6	30	1008
Sun Oil Co., Ford 3	*	1019
The Texas Co., Hayter 1	70	1397
COOKE COUNTY—		
American Ref. Co., Dennis 15	35	1289
Kewanee O. & G. Co., Dennis 21 ...	60	1295
DENTON COUNTY—		
Gray & Adams, Rucker 1	*	2508
ELECTRA—		
Cable et al, Mrs. B. Parker 1	*	1321
Eastern Pet. Co., Burnett 5-C	15	1460
C. P. Sheldon et al, Frankl 7-A	30	1663
JACK COUNTY—		
Panhandle Ref. Co., Smith 1	380	2950
Petroleum Prod. Co. & Texas Co., Jones 1	290	3174
K-M-A AND IOWA PARK—		
Grayce Oil Co., Overly 9	30	803
Staley-Wynne et al, K. & K. 1....	35	856
MONTAGUE COUNTY—		
Bridwell Oil Co., Salmon 1-D.....	¶7	894
Pure Oil Co., Loy 8	25	817
WILBARGER COUNTY—		
Barkley-Meadows et al, Waggoner 4-C	135	1895
Waggoner 6-D	125	1870
Consolidated Oil Co., Waggoner 1-C	125	1892
Waggoner 1-D	*	1950
Fain-McGaha Oil Corp., Waggoner 12-S	4000	2435
W. B. Hamilton & N. H. Martin, Waggoner 5-B	130	1873
Waggoner 6-B	55	1883
Howell et al, Waggoner 1	*	1920
Phillips Pet. Co., Waggoner-Norwood 1-A	300	2378
Prairie O. & G. Co., Waggoner 6-B	20	2400
The Texas Co., Waggoner 8-E.....	260	2398
Waggoner Ref. Co., Waggoner 3-H..	2400	2424
Waggoner 3-H	2200	2419
Waggoner 5-H	2500	2401
Waggoner 6-H	2300	2412
YOUNG COUNTY—		
Atlantic & Johnston, Keen 1	*	727
Franklin et al, Carpenter 1	*	603
P. F. Gwynn et al, Kunkel 2-B	110	1152
Hall et al, Davis 2	75	560
Kleiner et al, Langston 13	100	569
Lange et al, Swain-Robinson 1	40	719
Paull Oil Co., Eddleman 2	25	2245
Petroleum Prod. Co., Henning 4 ..	*	1201
Russell et al, Self 1	*	805
Wise & Jackson, Hamm 1	*	601
York State Oil Co., Harmonson 1 ..	*	565

CENTRAL WEST TEXAS

BROWN COUNTY—		
Anna Belle Oil Co., Hickman 5	150	1252
Hickman 7	60	1285
Burris et al, Newton 6	190	1210
Charter Oil Co., Byler 8	340	1327
Gracey & Summar, Baker 1	*	1175
Kone Prod. Co., Hickman 5-C.....	40	1291
Midland Oil Co., Hickman 2	90	1271
Mid-West Explo. Co., George 1	300	1322
Valley Oil Co., Teston 8	75	1206
Owens et al, Sewalt 2	*	1003
Richardson & Hurst, Mears 1	*	1487
CALLAHAN COUNTY—		
Geo. McCamey et al, Biggerstaff 1..	*	757
Peer Oil Corp., Gibson 1	*	1440
Prairie O. & G. Co., Sawyer 1	30	1725
COLEMAN COUNTY—		
Dunnigan & McCready, Newman 1	*	1204
Henshaw Oil Corp., Harris 1	55	2622
Red Bank Oil Co., May 1	*	3410
EASTLAND COUNTY—		
Lewis & Moore Whittington 3	25	1340
Lobaugh et al, Tult 1	*	1530
Root et al, Kurklin 1	¶2½-300	3418
PALO PINTO COUNTY—		
Texas Fidelity Oil Corp., Eddleman 1	*	2505
T. P. Coal & Oil Co., Robinson 1..	*	1755
SHACKELFORD COUNTY—		
Cranfill & Reynolds, King 2	*	1860
Humble O. & R. Co., Davis 3-A....	*	2025
Roeser-Pendleton, Inc., Cook 27-A (Sec. 60)	50	1217
Cook 74-A (Sec. 60)	25	1186
Cook 22-C (Sec. 60)	100	1210
Cook 23-C (Sec. 60)	150	1237
STEPHENS COUNTY—		
T. P. Coal & Oil Co., Binney 75....	115	1808

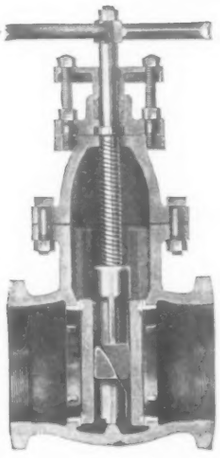
WEST TEXAS

CRANE COUNTY—		
Gulf Prod. Co., McElroy 52	150	2900
CROCKETT COUNTY—		
Republic Prod. Co., Powell 1-B	400	2608
HOWARD COUNTY—		
Owen-Sloan Corp. & Cosden & Co., Roberts 4	470	2710
Sun Oil Co., Settles 2	2500	2982

(Continued on Page 72)

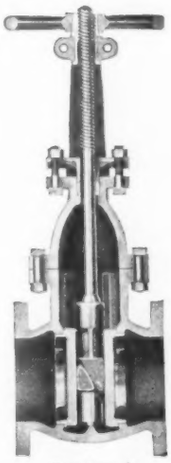
WALWORTH

DOUBLE DISC IRON BODY GATE VALVES



Sectional
N. R. S.
SCREWED

125 lb. W. S. P. (700 lb.
Test and 1000 lb. Test)



Sectional
O. S. & Y.
FLANGED

The double discs of this Walworth valve are designed to release instantly and keep clear of the seat until the instant of closing, when they are moved apart by a spreading device. The discs are always in alignment whether the valve is upright or horizontal.

These Walworth valves are suitable for almost any service in which an iron body valve may be specified. The interchangeable disc is an important feature as it facilitates repairs.

Sold By

Republic Supply Company

GENERAL OFFICES - HOUSTON, TEXAS

OIL AND GAS WELL SUPPLIES

ROTARY AND CABLE TOOLS

There is a Jensen–

that will make your wells produce more oil for less money, and if that sounds like a fairy story, make us prove it! A well without the right jack is like an automobile without a universal joint. Think that over and send for our catalog.

JENSEN JACKS

and Pumping Units

JENSEN BROTHERS MFG. CO.

Coffeyville, Kans., U. S. A.

Export Office: 136 Liberty St., New York City

BRONZE TO BRONZE

Is the Reason

DART UNIONS

Give Service
Try them

E. M. Dart Mfg. Company

PROVIDENCE, R. I.

The Fairbanks Company
Distributors

Company, well and Location	Initial Production Bbls.	Depth
JONES COUNTY—		
Texas Co. & Cosden & Co., L. Carter 1	300	2532
PECOS COUNTY—		
Gulf Prod. Co., M. A. Smith 10	840	1640
I. G. Yates 10	1560	1330
Mazda Oil Corp. & Savoy Oil Co., Smith 3	3900	1696
Mid-Kansas-Transcontinental, Yates 4-D	2900	1174
Yates 2-F	6000	1206
Yates 2-H	15,000	1670
Roxana Pet. Corp., Smith 1-D	1900	1866
Tippett 8	9100	1441
WINKLER COUNTY—		
Atlantic & Collett-O'Keefe, Hendrick 9-F	36,000	2730
Gulf Prod. Co., Hendrick 2	3960	3074
Humble O. & R. Co., Walton 1	¶44	3150
Roxana Pet. Corp., Grisham-Hunter 4-A	40,000	2791
Roxana & The Texas Co., Hendrick 4-C	39,000	2851
Skelly Oil Co., Hendrick 6	18,500	2742
Hendrick 7	23,000	2682
Hendrick 8	24,000	2705
Southern Crude & R. A. Westbrook, Hendrick 2-U-T-88,	3000	2830

J. H. McEvoy & Company, Houston, announces a new descriptive catalogue bulletin on the various McEvoy product. In this bulletin are described the new working barrel pump and the various types of well control heads manufactured by the company. The pump has met with success in a number of tests. The casing and tubing control head equipment is shown in various book-ups for different uses. In addition to these items, the line of McEvoy Wireless well strainers, the McEvoy set shoe assembly, the McEvoy rod hanger and other pieces of special oil field equipment are shown. Copies may be had by writing to the company.

Fort Worth, Texas—Texon Oil & Land Company, discoverer of the Big Lake field, West Texas district, has established an office here on the seventeenth floor of the W. T. Waggoner Building. Frank T. Pickrell, vice president and general manager, is making this his headquarters, although the offices now located in the field at Santa Rita and in New York City will be retained. W. M. Preston, formerly with Marland Production Company, is assistant in charge of the Fort Worth office.

Typographical Error

A typographical error occurred in last week's Regan advertisement carrying a title to the illustration of the Regan Traveling Block, stating that Regan Crown Blocks are made for four, six, eight and 19-line string ups. The numeral 19 should have read 10, so that the wording should have read as follows: Regan Crown Blocks are made for Four, Six, Eight and 10-line string ups. This correction notice is given so that readers may not be confused.

Announcing a

Petroleum Catalog Department

THE unqualified reception which has greeted the announcement of our COMPOSITE CATALOG OF NEW AND STANDARD OIL FIELD AND PIPE LINE EQUIPMENT, has lead to the establishment of a catalog department in our organization which in addition to handling the above catalog, will also have in charge the work on a catalog for each of the two remaining major branches of the oil industry.

The oil industry, although one of America's largest industries, has had no composite catalog of the equipment used in its three great branches. The need for such catalogs has been so apparent that when the announcement of our COMPOSITE CATALOG to cover oil field and pipe line equipment was made, we were deluged with inquiries which, despite the fact that announcement was made less than a month ago, already have resulted in orders for more than 100 pages of catalog space.

The three catalogs and their closing dates, will be:

COMPOSITE CATALOG OF NEW AND STANDARD OIL FIELD AND PIPE LINE EQUIPMENT, closing date January 3, distribution 11,000.

COMPOSITE CATALOG OF OIL MARKETING EQUIPMENT, closing date March 25, distribution 5,000.

COMPOSITE CATALOG OF PETROLEUM REFINING AND NATURAL GASOLINE EQUIPMENT, closing date July 1, (1929), distribution 4,000.

It will be noted that a specialized catalog is provided for each of the three major branches of the oil business, thus making not only for the convenience of the reader, but for economy in the case of the manufacturer using space in these catalogs.

Further information will be given upon request.

THE GULF PUBLISHING COMPANY

Publishers of Specialized Oil Journals

GENERAL HEADQUARTERS: HOUSTON, TEXAS

Branch Offices in

NEW YORK PITTSBURGH CHICAGO TULSA LOS ANGELES FORT WORTH

WILDCATS FROM ALL SECTIONS

WEST TEXAS

Completions

Company, well and Location	Initial Production Bbls.	Depth
PECOS COUNTY—		
Sun Oil Co., University 1	*	2100
RUNNELS COUNTY—		
Vacuum Oil Co. et al, Fowler 1.....	*	2583
UPTON COUNTY—		
Marland and L. H. Wentz, Timms 1	*	3543

Drilling Report

ANDREWS COUNTY—Deep Rock Oil Co.'s Harris 1, elev 3173 ft, top salt 1705 ft, top lime 4005 ft, bailing live oil in sandy-lime pay, 4270-74 ft.

BORDEN COUNTY—E. L. Doheny et al's Koonsman 1, co 550 ft.

BREWSTER COUNTY—Cowden-Cole et al's Jackson-Harmon 1-A, cavey hole 1065 ft. Forest Oil Corp.'s Skinner 1, sd 1150 ft. Van McPhail et al's McIntyre 1, fsh 1765 ft. Reese & White's Kimball 1, ur 1825 ft. Clayton Williams et al's Poncey 1, lcn.

COKE COUNTY—Lipan Oil Co.'s Rawlings 1, sd 2840 ft.

CONCHO COUNTY—Douglas Oil Co. et al's Harral 1, dr 2685 ft. The Exploration Co.'s Hartgrove 2, machine.

CRANE COUNTY—Church-Fields' University 3, rig. C. C. Duffey et al's Cowden 2, dr 465 ft. Gulf Prod. Co.'s Waddell 5, dk. Evans-Anderson & J. K. Hughes' State Bank Fee 1, elev 2463 ft, top salt 525 ft, dr 2930 ft.

CROCKETT COUNTY—T. W. Callahan et al's J. S. Todd 1, lcn. Hal Compton & Co.'s University 1, elev 2681 ft, top salt 1055 ft, top lime 2055 ft, sd with trace oil 2058-68 ft. W. W. Donnelly et al's Massie 1-A, dr 775 ft; Shannon-Middlebuster 2, (Sec. 18) top salt 774 ft, set cas 1175 ft; Shannon-Powell 1, (Sec. 42) spudded and sd. Fuhrman Pet. Corp.'s Padgett 1, rig. Renee Oil Co.'s Powell 1, elev 2692 ft, top salt 1100 ft, top lime 2070 ft, sd in water 2706 ft. Simmons & Marland's University 1, sd 1130 ft.

CULBERSON COUNTY — Deep Rock Oil Co. & Grisham-Hunter Corp.'s Bettis 1, co to pump with oih at 1483-95 ft. J. M. Hickey et al's C. O. Finley 1, dr 1400 ft. Scott & Dittman's Miller 1, sd 1765 ft.

JEFF DAVIS COUNTY—Sam F. Means et al's J. Z. Means 1, sd 3045 ft.

EDWARDS COUNTY—Magnolia Pet. Co.'s Whitehead 2, dr 640 ft. McMan O. & G. Co.'s Schreiner 1, ur 1090 ft.

EL PASO COUNTY—C. E. Sillix et al's Malone 1, sd 1010 ft.

FISHER COUNTY — Cranfill-Reynolds & Sun Oil Co.'s E. G. Young 1, lcn; J. A. Young 2, lcn; B. F. Willingham 1, lcn. Mid-West Explo. Co.'s Decker 1 and 2, lcns. R. W. Rainey & Bill Little's Marberry 2, elev 1929 ft, top lime 2995 ft, sd showing oil and gas 3289 ft. Roeser-Pendleton & Landreth Prod. Corp.'s Decker 1, dr 840 ft. Texas Unity Oil Co.'s Reddus 1, dr 2410 ft.

GARZA COUNTY—Emerald Oil Co.'s Boren 3, elev 2353 ft, top salt 660 ft, top lime 1605 ft, dr 4685 ft.

GLASSCOCK COUNTY—Eastland Oil Co. & White Eagle O. & R. Co.'s Cox 1, dr 505 ft. Landreth Prod. Corp.'s Houston 2, elev 2609 ft, top salt 1265 ft, dr water sand 3620-75 ft. Meriwether Oil Co.'s McDowell 2, elev 2522 ft, top salt 1000 ft, top lime 2510 ft, fsh 3630 ft. Roxana's Boston 1, elev 2713 ft, top salt 1205 ft, top lime 2670 ft, dr 3445 ft. World Oil Co.'s McDowell 1-B, elev 2523 ft, set cas 1975 ft.

TOM GREEN COUNTY—Cox & Hooper's Garlity 1, sd 350 ft. F. P. Green et al's Fee 1, sd 1065 ft. Tinker et al's Jones 1, sd 940 ft. McLaughlin & Ridge's Holder 1, sd 2655 ft.

HOWARD COUNTY—Amerada Pet. Corp.'s Roberts 1, elev 2738 ft, top lime 2115 ft, flowed 40 bbls per hour for six hrs. 2490-2505 ft and sd; Stewart 1, elev 2779 ft, top lime 2240 ft, dr 3010 ft. Bristow & Merrick's Hooks 7, sd 1756 ft; Hooks 8, spudded and sd. J. S. Cosden & Co.'s Roberts 1-A, elev 2777 ft, swabbed 165 bbls oil five hours dr pay 3083-3105 ft; Roberts 2-A, elev 2792 ft, set cas with 1500 ft oih 3120-25 ft; Roberts 3-A, elev 2754 ft, dr 2570 ft; Roberts 4-A, lcn. W. W. Donnelly et al's Clay 1, sd for shot with 700 ft oil 1900-45 ft. Dunigan & Hyer's Clay 1, spudding. Evans Oil Co.'s Roberts 1, dr 1435 ft. F-H-E Oil Co. and Moody Corp.'s Roberts 3-B, and 4-B, lcns; Roberts 1-C, fsh 2945 ft; Roberts 3-E, dr 1160 ft; Roberts 4, 5, 7-E, lcns; Roberts 8-E, co with 700 ft oih 1301-15 ft. Godley O. & G. Co.'s Hooks 6, sd 1729 ft; Hooks 7, rig. Gulf Prod. Co.'s Clay 2, show oil 1810-20 ft; Chalk 5, dr 1415 ft. Greene O. & R. Co.'s Clay 2, cem cas 1490 ft. Harrison et al's Dodge 1, rig. Laurel O. & G. Co.'s Reid 1, elev 2375 ft, top salt 965 ft, co 3235 ft. McGinley-Sigler Co.- Henshaw Oil Corp. & Lee Davis's Eason-Settles 1, elev 2708 ft, top lime 1950 ft, flowed 60 bbls 32½ degree oil per hour 2208-10 ft. Henshaw et al's Settles 1, sd 2692 ft. Magnolia Pet. Co.'s O'Daniel 2, dr 2440 ft; Roberts 4, elev 2704 ft, dr 2785 ft with hfo; Roberts 8, elev 2729 ft, top lime 2045 ft, co with hfo 2712 ft; Roberts 9, dr 300 ft; Roberts 10, rig; Roberts 11, spudded and sd; Roberts 12, lcn. Marland Prod. Co.'s Clay 1-F, making gas 1517-24 ft, dr 1615 ft; Roberts 1, lcn. Merrick & Lamb's Clay 4, sd in oil pay 1731-74 ft, td 1824 ft. Mid-West Explo. Co.'s Clay 1, Co.'s Roberts 5, fsh 2585 ft; Roberts 6, dr 2835 dr 1060 ft. Owen-Sloan Corp. & Cosden & ft. Pure Oil Co.'s Chalk 6, lcn. Schemmerhorn Oil Co.'s Roberts 2, dr 1950 ft. Sprague Oil Co.'s Roberts 1, dr 2095 ft. Sun Oil Co.'s Settles 3, rig. Texon & Marland's Settles 2-A, dd, dr 2365 ft; Settles 3-A, rig; Settles 4-A, lcn. Ward Oil Co.'s Roberts 2, rig.

HUDSPETH COUNTY—Western States Oil Co.'s Gardner-Mosely 1, re-set cas 2922 ft; S. W. Moore 1, sd 2240 ft.

IRION COUNTY—Empire Gas & Fuel Co.'s Sawyer 1, elev 2575 ft, top salt 835 ft, top lime 1765 ft, one bailer 35 degree oil 1824-26 ft, dr 1845 ft. Kimbrough & Tuel's Nutt 1, sd 1155 ft. Mertzon Oil Co.'s Roach 1, dr 1280 ft. Moore & Kennedy's Tankersley 1, re-set packer with oil and water in hole 1344-47 ft. Webb et al's Nutt 1, sd 1810 ft. West et al's Sugg 1, fsh 250 ft.

JONES COUNTY—Campbell et al's Dickinson 1, dr 920 ft. E. P. Campbell et al's Berry 1, lcn. Cowboy Evans et al's King 1, sd 1300 ft. Hucony Gas Co. et als' Tiner 2, dr 2320 ft; Tiner 3, dr 1610 ft. Hurley Oil Co.'s Gunther 1, co 2563 ft. McMan O. & G. Co.'s Tiner 1, dr 675 ft. Marland Prod. Co.'s Mason 4, dr 480 ft. Mook-Texas Oil Co.'s McCright 1, rig. Pandem Oil Corp.'s S. R. Cox 1, lcn. Phillips Pet. Co.'s S. Boy-Winters 1, dr 560 ft; Sharp 1, elev 1881 ft, ur 6-inch cas 2890 ft; Sharp 2, ur cas 2337 ft; Walling-Tessie 5, dr 1640 ft. Robert Oil Corp. & Cosden & Co.'s Grayson 3, sd 2345 ft. Roeser-Pendleton & Landreth Prod. Corp.'s Grayson 1, sd 1925 ft. Snowden & McSweeney's Bickley 1, sd cas

Associations Arrange Programs For Exposition Dates

Tulsa.—Sessions of the petroleum division of the American Institute of Mining and Metallurgical Engineers which are to be held October 18 and 19, immediately preceding the International Petroleum Exposition, will be full of interest to oil and gas operators, it is predicted by A. W. Ambrose, chairman of the division, an official of the Empire Companies, Bartlesville. This organization recently decided to take official part in the exposition and tie in its technical activities with the exposition.

This new scientific feature for the exposition adds great interest to the scientific and technical division, which has a building at the exposition grounds and which is preparing for a very elaborate showing in those lines. The prominence given the department is a part of the policy of the exposition board, which insists that the event is above everything else, a scientific and technical one.

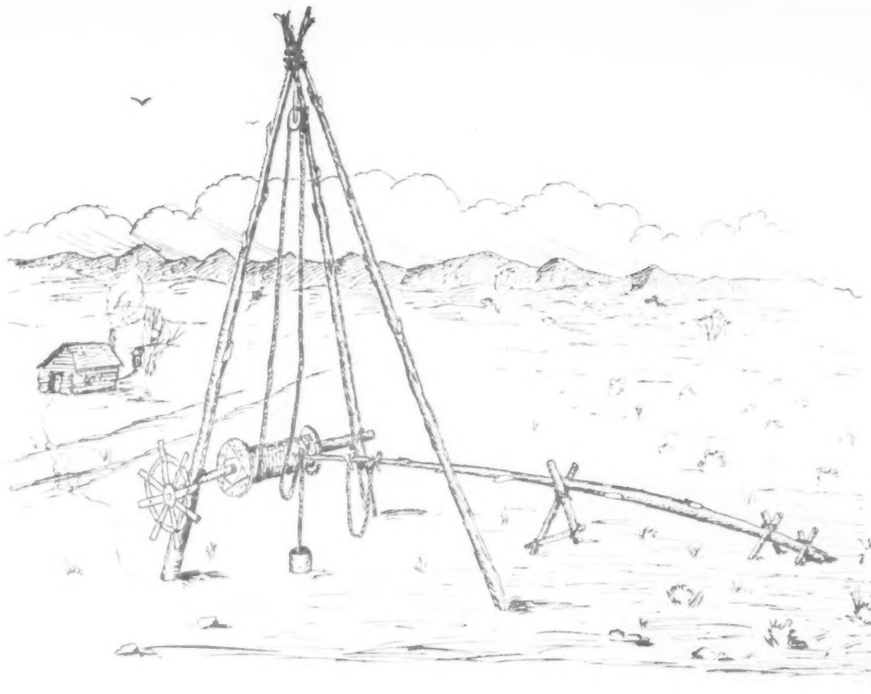
The week's announcements from the exposition offices include a statement that foreign participation will be greater than ever and that the responses from official invitations sent through the federal government show a world-wide interest.

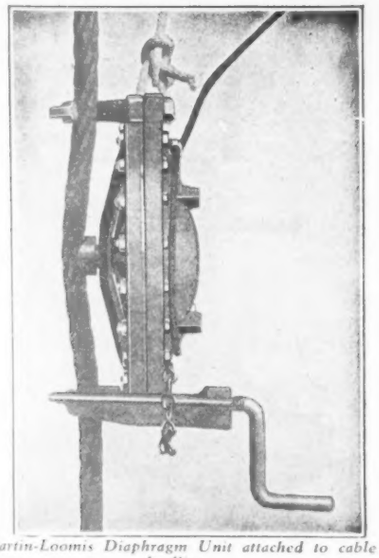
Meeting places are being arranged for the Metallurgical and Mining Engineers, the Standardization division of the American Petroleum Institute, the state geologists, the gas associations and other organizations allied with oil and gas. The city is gaining two large hotels for the exposition season and the apportionment of space is well advanced. There is an unusual demand for big space at the hotels, due to increasing participation by the larger supply houses and oil companies generally. The housing committee of the exposition is well along with its job. The largest attendance so far attained for the exposition and attendant events is assured.

Programs are forming for the safety events, put on by the associations and the United States Bureau of Mines.

In announcing two of the important papers to be read at the Mining and Metallurgical meeting, Chairman Ambrose said they would have practical bearing on production. Morgan Walker, petroleum engineer of the Amerada Petroleum Corporation, will read his paper on "Intermittent Injection of Gas-Lift to Gas-Lift Installations." The subjects to be covered were developed in actual experience in the Seminole district. Grouping of wells for intermittent flowings is a principal topic. The effect of gas injection upon the formational gas ratio and the rate of decline is treated.

F. G. Tickell, professor of petroleum engineering in Stanford University, has a paper on "Capillary Phenomena as Related to Oil Production." The influences that restrain movement of fluids in the oil reservoir and the increasing viscosity of the fluids is traced. Gas bubbles, water globules, emulsions and foams are explained.

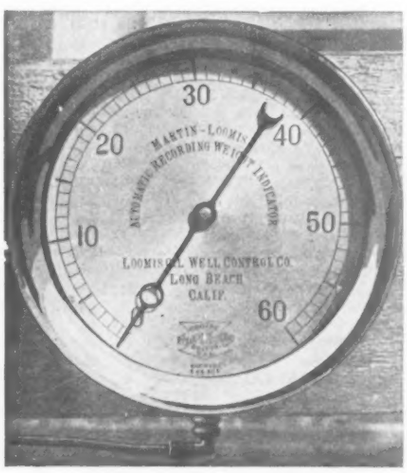




Martin-Loomis Diaphragm Unit attached to cable deadline

The Old *Hemlock* Engine

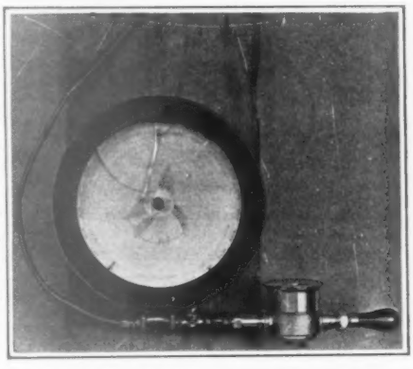
BACK in the days of '62, when drilling wells was not a complex proposition, all that a man needed to put down a "bore" was a lithe hemlock sapling and a strong right leg. And that's when Jim Martin, father of the inventor of the Martin-Loomis Weight Indicator, started drilling wells in Oil Creek, Pa. at the handsome salary of $1.25 per ten hour day.



Weight Indicating Gauge mounted on derrick girt constantly in view of driller

A lot of water has flowed under the bridge since Jim Martin's time but the rich experience of that hardy pioneer of the oil business has been handed down through two generations that have maintained a lifelong contact with the petroleum industry. This, then is the lineage of the most important development in oil field practice since the introduction of the rotary—namely the Martin-Loomis Automatic Recording Weight Indicator.

This hookup, the pioneer in the fields, eliminates the uncertainty of drilling by the "feel of the brake." It gives the driller an accurate indication at all times of the weight on the bottom or the weight on the hook. During the work of coring, fishing, or making hole, the Martin-Loomis Weight Indicator is always on the job guiding the driller and increasing the efficiency of all operations. Martin-Loomis equipment is now in use in oil fields all over the world. Its installation is the logical step of every practical progressive operator — one step farther away from the old hemlock engine days.



Recording Unit in belt house compiling a 24-hour graphic record of all drilling operations

Literature and complete information gladly sent upon request

MARTIN-LOOMIS CORPORATION

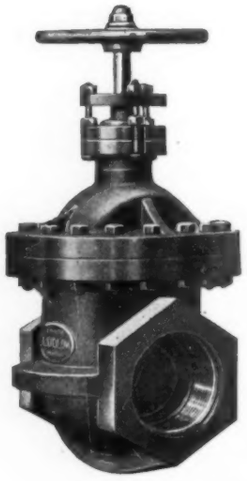
568 East Willow Street **Long Beach, Calif., U. S. A.**

Foreign Distributors
OIL WELL SUPPLY COMPANY
PITTSBURGH, PA.

AND
THROUGH
ALL SUPPLY
STORES

Mid-Continent Distributors
REED ROLLER BIT COMPANY
HOUSTON, TEXAS

LUDLOW



IS
AND HAS BEEN
FOR 40 YEARS
FURNISHING
STANDARD
VALVES
—SUITABLE
AND WHICH GIVE
SATISFACTORY
SERVICE
TO THE
OIL INDUSTRY

THE LUDLOW VALVE MANUFACTURING CO.
Troy, New York

CHICAGO BOSTON KANSAS CITY PITTSBURGH

TRADE LUDLOW MARK

Distributed by
Mid-Continent Supply Company,
Fort Worth, Texas
Peden Iron & Steel Company,
Shreveport, Louisiana
Henderson Iron Works,
Shreveport, Louisiana

EDGAR TOBIN AERIAL SURVEYS, Inc.

1515 MAIN AVE.

SAN ANTONIO, TEXAS

PHONE CROCKETT 3383

Aerial Mosaic Maps

2225 ft. W. W. Zingery et al's Thomas 1, lcn. Texas Co. & Cosedn's Carter 1, completed swab 157 bbls oil 10 hours 2517-23 ft, td 2532 ft.

KENT COUNTY—Cosden & Co.'s Bilby 1, dr 905 ft. Phillips Pet. Co.'s Sandell 1, dr 1835 ft.

KING COUNTY—Humble's Pitchfork 1, sd 4035 ft. Texas Co.'s Johnson 1, dr 2850 ft.

LOVING COUNTY—Lockhart & Co.'s Bowers-Wells 1, elev 2690 ft, top salt 730 ft, dr 4050 ft; Hubbard 1, elev 2693 ft, top salt 708 ft, dr 2270 ft; Fee-Lepp 1, co 4135 ft. Hadlock Oil Co.'s Russell 2, dry and sd after shot, td 4365 ft.

MARTIN COUNTY — Phillips Pet. Co.'s Slaughter 1, elev 2726 ft, top salt 1685 ft, fsh 3430 ft.

MENARD COUNTY—Moody Corp.'s Allison 1, elev 2053 ft, sd 2805 ft. Panhandle Ref. Co. et al's Eckhardt 1, dr 1865 ft. Renfro et al's Davis 1, dr 785 ft.

MIDLAND COUNTY—C. P. Sheldon et al's Kloh 1, lcn. O. H. Shoup et al's Parks 1, elev 2871 ft, top salt 1740 ft, dr 3075 ft.

MITCHELL COUNTY—Owen-Sloan Corp.'s G. M. Brown 1, dr 1025 ft.

NOLAN COUNTY—Herbert Oil Co.'s Pepper 1, sd 485 ft.

PECOS COUNTY — Anderson et al's University 1, sd 1880 ft. Alexander-Lyles et al's Sellman 1, top salt 814 ft, sd 1008 ft. Benedum-Trees et al's Corder 1-A, top lime 1840 ft, sd hfw 1900 ft. Ditto Oil Co.'s Montgomery 1-A, skid rig, td 170 ft. Cowboy Evans-Read et al's S. Byrens 1, sd in water 1330 ft. Bob Elmore et al's M. Holmes 2, sd 1690 ft. Fuhrman Pet. Corp.'s Ewing 1, elev 2325 ft, top salt 685 ft, top lime 1973 ft, set cas 2005 ft. J. W. Grant et al's W. W. Turney 1, elev 2592 ft, dr 3715 ft. Olean Pet. Co.'s Harral 1, elev 3005 ft, top salt 845 ft, top lime 2540 ft, sd 2817 ft. Pecos Valley Oil Co.'s Fee 1, spudding. Phillips Pet. Co.'s Heyman-Nutt 1, elev 2943 ft, top lime 2085 ft, showing water, dr 3600-20 ft. Roxana & Kirby Pet. Co.'s University 1, set cas 3070 ft. Schumaker et al's O. W. Williams 1, spudded and sd. Southern Crude Oil Pur. Co.'s Scharbauer 1, elev 2680 ft, fsh 2886 ft. Transcontinental's University 1, elev 2552 ft, top lime 1035 ft, dr 3593 ft. Vacuum Oil Co.'s Elsinore 1, elev 3554 ft, sd repairs 4050 ft. P. R. Whonlich & Co.'s Arnold 1, sd 240 ft. World Oil Co.'s Kloh 1, elev 2810 ft, fsh 3106 ft.

PRESIDIO COUNTY—Empire et al's Tootle 1, spudded and sd. L. C. Brite et al's Brite 1, materials.

REAGAN COUNTY — Empire Gas & Fuel Co.'s Sawyer 1-A, lcn.

REEVES COUNTY—E. W. Brooks et al's Eddins 1, sd 5658 ft. Eastland-Vacuum & Geo. Lyles' Campbell 1, dr 1610 ft. The Exploration Co. et al's Kinney 1, elev 2847 ft, sd 2900 ft. McRobie et al's Bell 1, dr 505 ft.

RUNNELS COUNTY—Agnew & Sons et al's Russell 1, co 2283 ft. Gibson-Johnson et al's Rainwater 1, sd 2500 ft. Hamilton et al's Spill 1, rig. Kennedy et al's Talley 1, dr 2965 ft Henry B. May et al's Schneider 1, sd 2516 ft. Nourse & Tilton's Cramer 1, rig. Pure Oil Co.'s Giesecke 1, dr 1290 ft. Vacuum Oil Co. et al's Flannagan 1, sd hfw 2720 ft.

SCHLEICHER COUNTY — Long Bros. et al's Williams 1, sd 280 ft.

SCURRY COUNTY—R. B. Pender et al's Davis 1, rig.

STERLING COUNTY—Manhattan Oil Co. et al's Ellwood 1, dr 3160 ft.

STONEWALL COUNTY — Henshaw Oil Corp.'s Moore 1, sd 3055 ft. Sun Oil Co.'s Alice Rayner 1, materials.

SUTTON COUNTY — Phillips Pet. Co.'s Holman 1, dr 2410 ft.

TERRELL COUNTY—Big Bend Oil Corp.'s Bassett 1, spudded and sd. Champlin Ref. Co.'s Carter 1, elev 2884 ft, cavey hole 3425 ft. Milham Corp.'s Bassett 1, elev 3270 ft, sd 3770 ft. Keck-Pecos Oil Trust's Hamilton 1, dr 1305 ft.

UPTON COUNTY—Buell & Hagan's Robbins 1, sd 180 ft. Cordova Union Oil Corp.'s Fee 1, dr 555 ft. F. P. Zoch et al's Union-Murphy 1, dr 1000 ft.

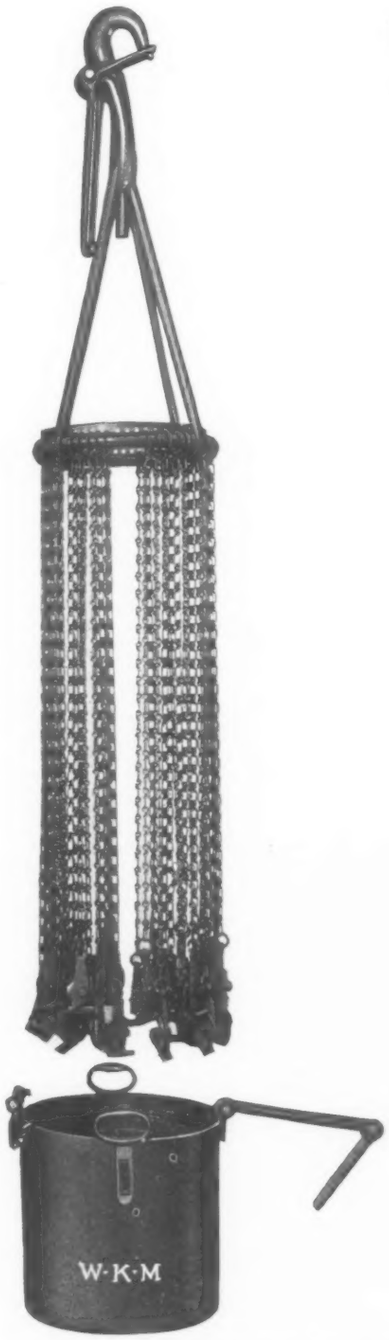
VAL VERDE COUNTY — Val Vert Oil Corp.'s Bassett 1, skid rig, td 225 ft.

WARD COUNTY — Denver Prod. & Ref. Co.'s Cherokee Fee 1, dr 2305 ft. Shipley et al's Hayslett 1, spudding.

WINKLER COUNTY—V. T. Bolin et al's

Ever hear of a "*portable* rod walk in a tub?"

IT ELIMINATES: (1) Rod Walks; (2) Kinked Rods; (3) Sandy and Dirty Rods; (4) Tubing Worn by Kinked Rods; (5) Many Rod Breaks; (6) Slow Rod Pulling Jobs; (7) Slippery Rod Walks.



Suspend a W-K-M Sucker Rod Hanger in your derrick, at the proper height, and you are ready to go at once. Save thirty to forty per cent of rod pulling time

THEY'RE packing rod walks in tubs these days!

That is, W-K-M Portable Sucker Rod Hangers (Fritts Type), which suspends rods in the derrick with absolute safety and eliminate the need to lay them down, come packed in heavy steel tubs for easy handling from well to well.

One W-K-M Portable Sucker Rod Hanger takes the place and does the work of fifteen to twenty expensive rod-walks—at a cost of from $6 to $8 per derrick. Other distinct advantages, which are leading more and more companies to standardize on them, are:

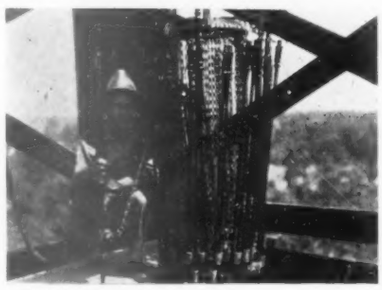
(1) Hanging rods is much faster than laying them down.

(2) Hanging rods prevents them from being kinked when pulled under the girts, or by being run over by wagons or trucks.

Catching them on the fly! Pull two rods to one when you are laying them down—and they don't get kinked or sandy!

(3) Keeps rods entirely free of sand which ordinarily goes right back to the tubing and down to the working barrel, cutting cups and plungers out.

(4) By eliminating rod kinks, wear on tubing caused by kinks is eliminated.



Going back in—waiting for the elevator. The W-K-M Portable Sucker Rod Hanger makes friends of pulling crews

(5) Hanging kinked rods helps to straighten them.

(6) Eliminates rod breaks due to kinking.

(7) Eliminates slippery, oil-soaked rod walks.

The W-K-M Portable Sucker Rod Hanger is easy to handle, and pulling crews like it. A demonstration on one well will fully convince you. We'll gladly demonstrate on request—no obligation.

W-K-M Company, Inc.

HOUSTON -:- TEXAS

EXPORT OFFICE: 74 TRINITY PLACE, NEW YORK, NEW YORK

SEND THIS TODAY

W-K-M Co., Inc., Houston, Texas
Gentlemen:

Please send us full information and prices on W-K-M SUCKER ROD HANGERS.

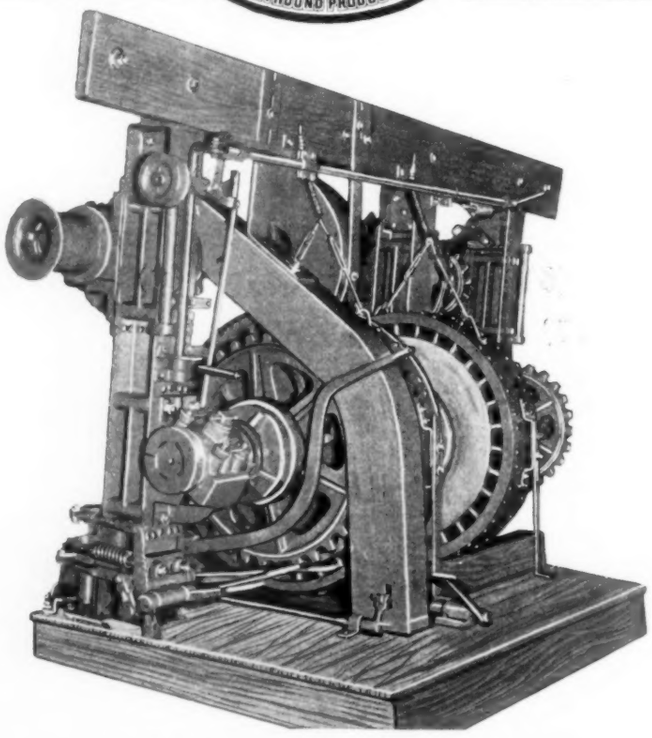
Name .....

Address .....

.....

.....

BOYKIN SPEED AND ENDURANCE GREYHOUND PRODUCTS



The "BIG TEXAN" Draw Works

Showing Shifting Pedals Advantageously Located For Greatest Ease in Handling

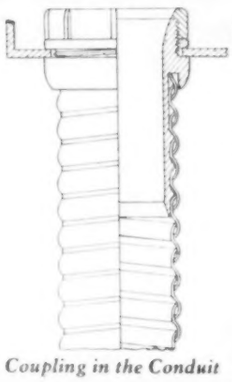
Close examination of the above illustration will show that all shifting is done with foot pedals adding ease in operation and speed in drilling. All pedals are conveniently arranged for easy handling by one man. The Boykin patented braking surface makes it possible to easily handle the heaviest loads.

Write for our booklet giving complete information regarding the Boykin "Big Texan" draw works.

Boykin Machinery & Supply Co.

MANUFACTURERS OF "GREYHOUND" EQUIPMENT

BEAUMONT—HOUSTON, TEXAS



Coupling in the Conduit

Flexible Conduit Connections should be

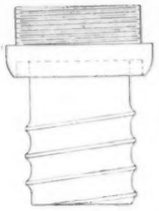
"JAKE"

Cast in Brass in sizes ½ to 2 inches

Also

Adapters for present Installation

Write for details if your dealer can't supply you



Coupling

Hunter-Walker Company

809-813 Public Nat'l Bank Bldg., HOUSTON, TEXAS

Brown 1, elev 2847 ft, top salt 1302 ft, sd showing oil and water after shot, td 3211 ft. Empire Gas & Fuel Co.'s Daugherty 1, dr 455 ft. Mining & Engineering Corp.'s Hendrick 1, top salt 1390 ft, top lime 2607 ft, set cas 2633 ft. Roxana & Llano Oil Co.'s Scarborough 3, elev 2939 ft, top salt 1280 ft, top lime 2958 ft, sd 2966 ft. Sid Richardson & White Eagle O. & R. Co.'s O'Brien-Stockton 1, dr 1890 ft. TP Coal & Oil Co.'s Daugherty 1, top salt 1460 ft, top lime 2894 ft, showing oil 2894-95 ft.

TEXAS GULF COAST

Completions

Company, well and location—	Initial Production Bbls.	Depth
AUSTIN COUNTY—		
Humble, L. R. Urban 1, Raccoon Bend	gas	932
FORT BEND COUNTY—		
Humble, Brazos Farm 1, Sugarland	20	3365
LIBERTY COUNTY—		
The Texas Co., Pickett 2, South Liberty	230	3536

AUSTIN COUNTY—Humble's Gotosky 3, Raccoon Bend, dr 1894 ft, shale and lime. Bracey 1, Raccoon Bend, r 2975 ft. L. R. Urban 1, Raccoon Bend, completed as dry gas well at 932 ft. L. H. Weadock's Ward 1, sd 2260 ft.

BRAZORIA COUNTY—Roxana's Rondon 1, Allen Dome, r at 5517 ft. Poole A-2, Allen Dome, dr 4122 ft sand.

CHAMBERS COUNTY—Pure Oil Co.'s Old River 1, Lost Lake, dr 3572 ft. Lost Lake 1, Lost Lake Dome, fsh 3375 ft. Lost River 1, Lost Lake Dome, dr 4440 ft, cap rock. Trinity River 1, Lost Lake dome, drk. Lost River Lake 1, Lost Lake dome, drk. Cut-Off Bayou, Lost Lake dome, drk. R. L. Bartlett's Fisher 1, Barbers Hill, standing.

COLORADO COUNTY—Rich Oil Corp.'s Von Rosenberg 1, 2¼ mi ne of Columbus, sd 2697 ft. Wallace 1, 1½ mi n of Alleyton, sd 1375 ft. U. S. Oil & Gas Co.'s Swank 1, 6 mi s of Rock Island, dr 2515 ft, lime.

FORT BEND COUNTY—Sun Oil Co.'s E. C. Farmer 2, Boling, dr 2550 ft., gbo. Gulf's Trone 8, Long Point, sd 3665 ft. Wolf 10, Long Point, dr 670 ft., gyp. More 16, More's Field, dr 2660 ft., shale. Humble's Sugarland Industries 3, Sugarland dome, dr 1818 ft, hard sand. Deathridge 1, Sugarland dome, dr 3516 ft, sandy shale and lime. Camp 1, Sugarland dome, dr 670 ft, hard sand and boulders Dew 1, Sugarland, drk. Brazos Farm 1, Sugarland dome, shut in, was completed as 20,000,000 ft gasser. Sugarland Industries 2, Sugarland dome, milling back pressure valve, td 3341 ft. J. H. Diehl's Armstrong 1, 2 mi e Boling, sd 475 ft. The Texas Co.'s E. Farmer 1, Boling, dr 4155 ft, blue shale.

HARDIN COUNTY—Chappel Hill Oil Co.'s Texas Co.'s Cruse 1, Batson, dr 3512 ft, rock. Hale 1, 5 mi nw Sour Lake, sd 1819 ft. The

HARRIS COUNTY—Torsen et al's Stewart 1, 4 mi sw Genoa, drk. J. A. Hautier's Grouse 1, Green's Bayou, dr 2400 ft, blue shale. Hunt et al's Lobit 1, 4 mi n Goose Creek, sd 2148 ft. Humble's Warren 4, Hockley, dr 3737 ft, sandy shale. Cedar Bayou Oil Co.'s Johnson 1, 8 mi n Goose Creek, sd 2465 ft. The Texas Co.'s House 21, Humble, dr deeper from 3713 ft after testing, and showing oil. Drummett et al's Brock 1, Almeda, dr 3918 ft, shale and lime. M. & S. Oil Co.'s Cook 1, 2 mi ne Crosby, dr 1500 ft, gbo. Brains et al's Lentze 1, 4 mi s Tom Ball, dr 1120 ft, shale. Mrs. Baldwin et al's Kitsman 1, 2 mi n Cypress, set 6⅝-in cas at 1925 ft.

JEFFERSON COUNTY—Deep Test Oil Co.'s McFaddin 1, 4 mi ne Spindle Top, sd 2175 ft. Gulf's Bordages 6, Fannett, dr 4517 ft, shale. So. Spindle Top O. & Dev. Co.'s Young 1, 1 mi w Nederland, sd 3425 ft. Port Arthur O. & Dev. Co.'s West 4, Westbury, temporarily abn at 4740 ft. A. M. Deems et al's Mashman 2, 1 mi s Voth, lcn. The Texas Co.'s Gladys City 1, Spindle Top, dr 5388 ft, shale and lime. Beaumont Oil Co.'s Tyrrell 1, 2 mi w of Brooks, drk.

LIBERTY COUNTY—Barlow et al's Minchcliff 1, 2½ mi ne Cleveland, sd 2215 ft. The Texas Co.'s Pickett 2, nw extension S. Liberty, completed August 3 for 230 bbls pipe line oil at 3536 ft. Big Dome Interests' Finley 1, 2½

"Well making salt water" — *is reason for BYERS*

the results of corrosion on some of their tubing in the McCamey district so he is interested in the possibilities of wrought iron tubing for their wells.

Byers Tubing in this well has been in approximately one year, having no trouble to date. Well is making water. I was not advised how much water or oil, but Byers tubing has given satisfaction. The reason for the use of Byers tubing is the well making salt water; they know the difficulties they would have with ordinary pipe so decided to use Byers and avoid all trouble

Mr. A--, in charge of the lines around Goose Creek and the pipe line station there, is a very enthusiastic believer in wrought iron. He says that he hunted up all of the wrought iron pipe that he could find in the stream

CONFIDENTIAL REPORT • • •

The above is an extract from routine reports made daily by Byers representatives to the home office. These representatives are delegated to study corrosive conditions as regards tubing, line pipe, etc., in the Mid-Continent field. While one isolated report like the above does not make a case, hundreds of reports of similar character on pipe used under varying conditions of service, show clearly the economy of galvanized wrought iron pipe.

THIS actual, uncolored report is typical of hundreds covering conditions in oil pools everywhere.

These reports all bear out what we have been saying time and again—that Byers Galvanized Tubing of genuine wrought iron will have vastly longer life in severe service than ordinary tubing.

The reason is plain: Due to the rough surface of wrought iron which has been "pickled" for galvanized purposes, the heavy zinc coating imbeds itself deeply and securely, forming a permanent bond with the base metal.

The zinc coating on Byers will not chip, flake or peel in handling and in service like the coating on ordinary tubing. Therefore you can cut, thread, bend and abuse Byers Galvanized Tubing without danger of destroying the thick, tough zinc coating.

Actual uses and tests have consistently demonstrated that Byers wrought iron has a corrosion resistance many times greater than that of ordinary tubing material.

The facts about galvanized wrought iron tubing have been published in a bulletin available on request. Just ask for literature on galvanized tubing. No obligation.

A. M. BYERS COMPANY

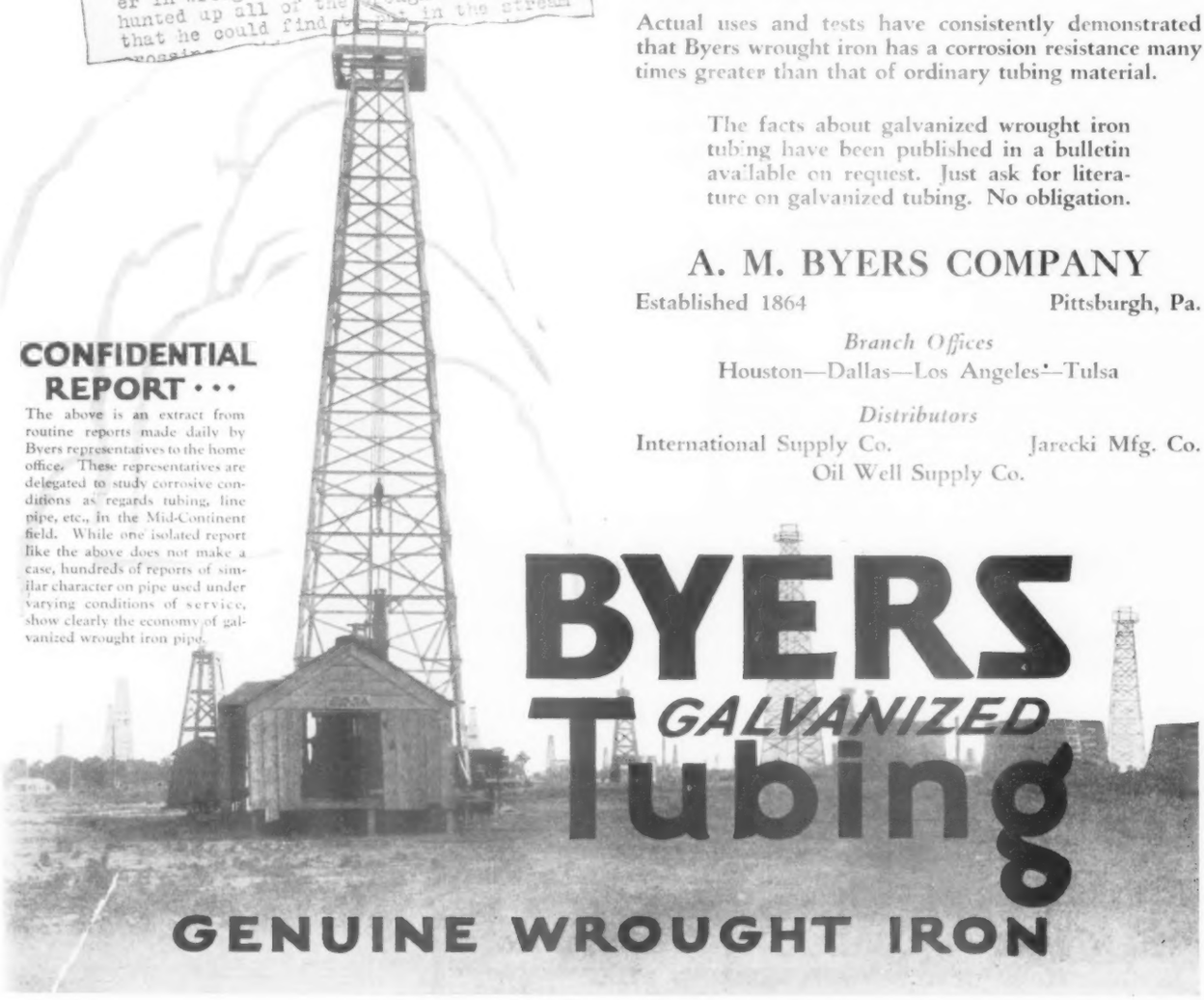
Established 1864 Pittsburgh, Pa.

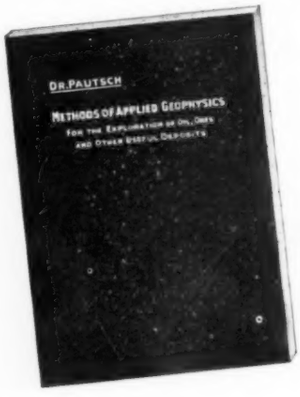
Branch Offices

Houston—Dallas—Los Angeles—Tulsa

Distributors

International Supply Co. Jarecki Mfg. Co.
Oil Well Supply Co.





Methods of Applied Geophysics

For the Exploration of Oil, Ores, and Other Useful Deposits.

By

DR. ERICH PAUTSCH, *Geophysicist*

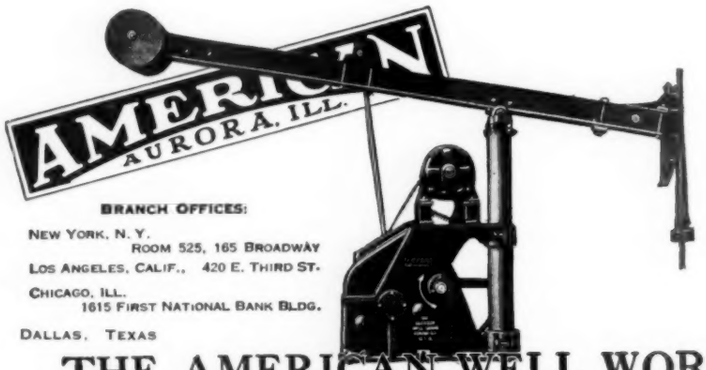
It is the purpose of this work to give a short, concentrated presentation of the results of theoretical and experimental research in applied geophysics. It gives to the physicist the principle of the geophysical methods, and will interest and incite him to specialized study. It affords all those who are already working in one or another geophysical branch, an insight into all geophysical methods.

Complete with formulas and graphically illustrated. 82 pages, paper binding, price, $6.50, postpaid.

Send check to

THE GULF PUBLISHING COMPANY

P. O. Box 1307, Houston, Texas



BRANCH OFFICES:

NEW YORK, N. Y.
ROOM 525, 165 BROADWAY

LOS ANGELES, CALIF., 420 E. THIRD ST.

CHICAGO, ILL.
1615 FIRST NATIONAL BANK BLDG.

DALLAS, TEXAS

THE AMERICAN WELL WORKS

General Offices AURORA, ILLINOIS *and Factory*

There is Over 3,000,000 Feet of

JONES A. P. I. SPECIFICATION **SUCKER RODS**

Now In Use

"High Manganese" RODS

Made in Both Box and Pin and Double-Pin Types

S. M. JONES COMPANY, Toledo, Ohio

TULSA OFFICE: 422-423 McBIRNEY BLDG.

mi nw Hardin, r 3275 ft; Finley 2, drk. Humble's Sterling 2, Moss Bluff, dr 1634 ft, hard sand; Sterling 2, Moss Bluff, dr 1634 ft, hard sand. Welder 8, S. Dayton, dr 3341 ft, rock. Sun Oil Co.'s Kyle 1, Moss Bluff, dr 1835 ft, gbo.

MATAGORDA COUNTY—Matagorda County Dev. Co.'s Hawkins 1, Bay City, sd 1985 ft. Dr. P. S. Griffith et al's Robbins 1, e Citrus Grove, dr 1240 ft, gbo. Baer 1, 1½ mi n Gulf Hill, dr 1300 ft, shale.

WALLER COUNTY—J. R. Young's Fee 2, lcn.

WASHINGTON COUNTY—Sun Oil Co.'s Schirmer 1, Brenham, dr 4100 ft, sand.

WHARTON COUNTY—Nail et al's Croom 2, Wharton, sd 1130 ft.

SOUTH LOUISIANA

Completions

ASCENSION PARISH—		
Gulf, United Lands Co. 8, Sorrento	*	2030
CAMERON PARISH—		
Calcasieu Oil Co., Magnolia and Union Sulphur Co., Watkins 6, Kelso Bayou	*	4186
Watkins 7, Kelso Bayou	1500	3920
ST. MARTIN PARISH—		
Rycade Oil Corp., Bayou Boullion 1	*	3809
Bayou Boullion 2	300	3230

ASCENSION PARISH — Gulf's United Lands Co. 8, Sorrento, abandoned in cap rock at 2030 ft; United Lands Co. 9, Sorrento, lcn. Triumph Oil Corp.'s Lacey 1, 1½ mi se Sorrento, repairing rig, td 2574 ft. Baton Rouge Pet. Co.'s Liotta 1, dr 592 ft, sand.

CALCASIEU PARISH—Union Sulphur Co's Fee 729, Sulphur, drk; Fee 728, Sulphur dome, dr 4742 ft, sandy shale; Fee 730, Sulphur dome, dr 4350 ft, gbo. Kelly 1, Sulphur dome, dr 3922 ft, gbo. Lehay et al's Jones 2, dr 1165 ft, gbo.

CAMERON PARISH—Pure's Sweet Lake 2, Sweet Lake, waiting on orders; Sweet Lake 3, Sweet Lake, fsh 6392 ft; Sweet Lake 4, Sweet Lake, working over, no production; Sweet Lake 5, Sweet Lake, flowing 3710 bbls on two ¾-in chokes; Sweet Lake 6, lcn 500 ft, e of sw c on s 1 sect. 12-13s-8w. La. Land & Explo. Co.'s Calcasieu Lake B-2, ½ mi ne Kelso Bayou dome, dr 3998 ft, shale and lime; Calcasieu Lake A-2, Kelso Bayou, dr 1500 ft, cap rock. Calcasieu Lake A-2, Kalso Bayou dome, Calcasieu Oil Co., Magnolia, and Union Sulphur Co.'s Watkins 7, Kelso Bayou dome, completed for 1500 bbls at 3920 ft. Watkins 8, Kelso Bayou, dr 3800 ft. Watkins 9, dr 3000 ft. Watkins 10, dr 282 ft. Watkins 11, lcn. Watkins 6, Kelso Bayou, abandoned at 4186 ft. Doiron 3, dr 3700 ft. Valery 2, dr 3600 ft. Yount-Lee Oil Co.'s State Land 14, Kelso Bayou, drk. State Land 15, Kelso Bayou, lcn. State Land 16, Kelso Bayou, ru. State Land 17, Kelso Bayou, lcn. Roxana's Watkins 3, Black Bayou district, building drk foundation..

IBERIA PARISH—La. Land & Explo. Co's Vermilion Bay A-2, dr 3520 ft, sand. Avery Island & Dev. Co. 2, Avery Island, lcn. Gulf's State Z-5, Loreauville, sd.

IEBRVILLE PARISH—Roxana's Wilbert 2, White Castle, dr 3531 ft, sand. Standard of La.'s Wilbert 1, ru.

JEFF DAVIS PARISH—Welch Pet. Co.'s Purveiance 1, Welsh, dr 4260 ft, gbo.

LA FOURCHE PARISH—Gulf's Stark 5, Thibodaux, lcn.

PLAQUEMINE PARISH—Gusher Bill O. & G. Co.'s Park Plantation 1, dr 2000 ft, gbo.

ST. MARTIN PARISH—Rycade's Bayou 1, abandoned in salt at 3809 ft. Bayou Boullion 2, swabbing 70 bbls oil at 3230 ft. Bayou Boullion 3, ru. State 1, Bayou Boullion, set 65⅝-inch screen at 2850 ft, tested, swabbed salt water, pulling screen to deepen. Martin 1, Bayou Boullion, dr 3905 ft, sand. Yount-Lee Oil Co.'s Louisiana Pet. Co. 2, Anse la Butte, dr 3550 ft, sand. Ohio Oil Co.'s Martin 3, Bayou Boullion, lcn. Bowie O. & G. Co.'s Begnaud 4, Anse la Butte, cleaning out. A. G. Broussard's Bergeron 1, Anse la Butte, dr 850 ft, sand; Bergeron 2, lcn.

ST. MARY PARISH—J. Dannenbaum's Viguerie 1, Charenton Beach, temporarily abandoned at 3214 ft.

WEST BATON ROUGE PARISH—Gosse Tete O. & G. Co.'s Wilbert 1, prep to dr deeper from 1325 ft.

WEST FELICIANA PARISH—Foster & Roberson's Raccourci 1, sd.

SOUTHWEST TEXAS

Completions

CALDWELL COUNTY—		
United North & South Dev. Co., Kelly 1, Luling	*	7859
Tiller 2, Luling	*	7504
Roxana Pet. Corp., Jolly 2, w Lockhart	300	1300
Cranfill & Reynolds, Starckey 1, w Lockhart	75	....
Davis et al, Young 1, Branyon dist	*	2220
VAL VERDE COUNTY—		
Valvert Oil Co., Bassett 1	*	....
JIM HOGG COUNTY—		
Edward St. Albans, Holbein 2	*	2095
Alworth et al, Garza 12, blk 8, Sect. 39	10	1020
WEBB COUNTY—		
Magnolia, Yeager Strohman 5	50	2165
Houston Oil Co., Cole Pet. Co. E-1	100	2350
T. P. Morgan, Sect. 323, Cole Field	500	1735
Bruni 1, blk. 40, Albercas grant	*	2050

CALDWELL COUNTY—Radcliff et al's Briscoe 1, 3 mi ne Luling, td 2975 ft. United North & South Dev. Co.'s Tiller 2, Luling, abandoned at 7504 ft in schist. Kelly 1, Luling, abn 7859 ft schist. Datex Oil Co.'s August 1, Branyon dist, cleaning out hole 2900 ft. Luling O. & G. Co.'s Carter 2, fsh 2865 ft. O. W. Killam's Blanks 1, dr 300 ft. Davis et al's Young 1, Branyon dist., abn 2220 ft. Cranfill & Reynolds' Starckey 1, w Lockhart, est. 75 bbls oil swabbing. Starckey 2, dr 1200 ft; No. 3 rn. Roxana Pet. Corp's Jolly 2, w of Lockhart, completed for 300 bbls initial at 1300 ft. Jolly 3, w of Lockhart, dr 50 ft. Suttle et al's Malone 1, ru. T. C. Hadley's Wilson 1, drk. Lu Tex Oil Co.'s Davis 2, ru. M. R. Armstrong's Martin 1, sd 1040 ft.

DUVAL COUNTY—National Oil Co.'s Bell 1, standing 2770 ft. R. Driscoll's Fee 12, tested small amt oil and gas at 2880 ft.

HIDALGO COUNTY—Dale Smith's Daskan 1, testing at 3780 ft. Queen City O. & G. Co.'s American Land & Irrig. Co. 2, 3 mi n Mercedes, repairing drk.

JIM HOGG COUNTY—Edward St. Albans' Holbein 2, abn 2095 ft; Holbien 3, dr 3145 ft, sandy shale. Alworth et al's Garza 12, completed for 10 bbls at 1020 ft.

JIM WELLS COUNTY—Cushing Oil Co.'s Perez 2, 3 mi n Alice, spudded.

KINNEY COUNTY—Stephens et al's Clamp 1, sd 1515 ft.

MAVERICK COUNTY—Rycade Oil Corp's Chittam 2, Eagle Pass, dr 6200 ft. Sullivan 3, Eagle Pass, dr 600 ft, chalk. Ryan Consolidated's India Land Co. 1, 24 mi se Eagle Pass, dr 4588 ft.

NUECES COUNTY—May et al's Gallagher 1, dr 562 ft, shale. Grimm & Morris' Garrett 1, Aqua Dulce, dr 1508 ft shale.

STARR COUNTY—The Texas Co.'s Cuerra 1, near Roma, dr 4445 ft hard sandy shale.

VAL VERDE COUNTY—East Del Rio's Weatherbee 1, sd 3350 ft. Thraves et al's Wilson 1, sd 1125 ft. Valvert Oil Co.'s Bassett 1, junked.

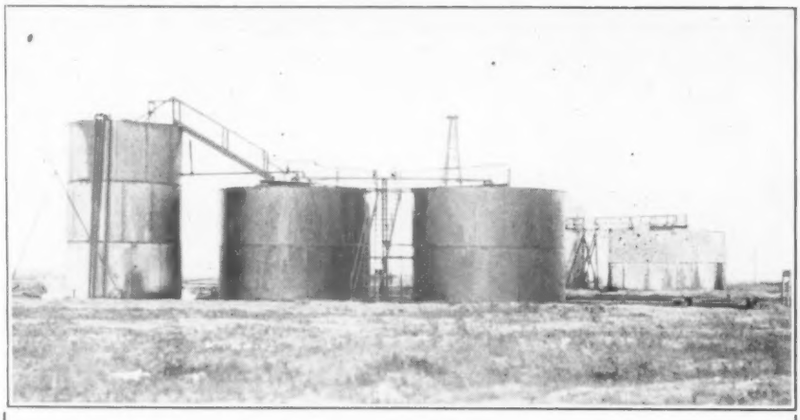
MOUNTAIN STATES

NEW MEXICO

CHAVES—McQuigg Bros.'s Neis 1, 7-5s-29e, dr 3500 ft. Snowden & McSweeney's Merchant 1, nw 27-15s-23e, dr 1235 ft. R. E. Neal et al's Russell 1, 21-14s-25e, sd 495 ft. Warman et al's 1, sw 23-13s-24e, wait for 12½-in at 130 ft.

DE BACA—Matador Oil Co.'s State 1, sw 6-4n-20e, dr 514 ft. Navajo Oil Co.'s McAdoo 1, ne 16-1s-27e, td 4190 ft, waiting drilling line.

LEA COUNTY—Marland's Eaves, 19-26-37, waiting for left-hand threaded casing; Sholes, 19-25-37, got 30,000,000 more gas at 3010 to 3025 and 30,000,000 more at 3030 to 3035, preparing to drill ahead; Lynn, 26-23-36, sp; Danciger, 7-23-36, fsh; Gardner, 34-23-31, dr 4377 ft. Mid-West's Farnsworth, 12-26-37, dr anhydrite 2755 ft. Texas' Shepard, 6-26-37, lcn; Cagle, 9-26-27, lcn; Moberly, 17-26-37, lcn. Cranfill & Reynolds, State, 23-26-36, rig. Skelly Oil Company, Joiner, 26-26-36, spud. Cranfill & Reynolds' Wilson, 23-25-36, lcn. Empire's State, 7-21-35, will run tubing and put on pump;



Four 1,000 Bbl. Maloneys and one 1,500 Bbl. Maloney Flow Tank used by Atlantic Producing Co., Pierce Junction, Texas

Maloney Durability

Protects Your Tank Investment

An investment in MALONEY Tanks is protected against unduly rapid depreciation by the *exceptional durability* of these tanks. Manufactured of rust-resisting Keystone Copper Steel—the most durable sheet steel known—MALONEYS are the longest lived bolted steel tanks on the market.

All MALONEYS have our patented "crimp" at seams and joints, causing parts to fit with accuracy. Seams are reinforced with rigid steel channels, packed with our special rubber gasketing and dressed vapor-tight with our Gaso cement. Our special bolts have a tensile strength of 90,000 lbs. Cleaning out plates are large and set flush with bottoms. Maloney special pearl gray paint is used. Valves and thief-hatches are the best the market affords.

"Alone in Quality"

MALONEY TANK MFG. CO.
TULSA, OKLA., U. S. A.

Distributors at All Principal Petroleum Points

Sizes: 12 to 10,000 Barrels

Packed in Steel-Bound Crates for Export

Howell Aluminum "3-in-1" Vacuum Pressure Valve and Thief-Hatch —The BEST and LATEST Deck Equipment—POSITIVE Safety

MADE OF KEYSTONE COPPER STEEL

MALONEY PATENTED BOLTED COPPER-STEEL TANKS

MADE OF KEYSTONE COPPER STEEL

MALONEY

ALONE

No. 11 of a series on the

FLUID PACKED PUMP

FPP

Two Types
Two Lengths

In order to meet and overcome all pumping conditions, regardless of formation, the Fluid Packed Pump is made in two types — "Rigid" and "Removable" and two lengths "Eleven Feet" and "Fifteen Feet." Either type or length when properly used will give you maximum pumping efficiency. Write for detailed information.

West Texas Representative:
R. W. (Bill) Harr
P. O. Box 45
McCamey, Texas

Fluid Packed Pumps are manufactured *only* by the Fluid Packed Pump Company of Los Nietos, California and distributed in Texas exclusively by the

ROBERT J.
MILLER
COMPANY
HOUSTON TEXAS

swabbed in 24 hours 80 barrels oil and 250 water at 3855 ft. Gypsy Oil Co.'s State, 34-21-36, standing at 3065 ft, has showing gas and oil. Bordages' Hughes, 1-27-19, casing collapsed 2500 ft. Mid-West's State, 9-19-38, standing while building 10,000-barrel additional storage. Will then make 30-day pumping test. Production now estimated at 250 barrels. Leonard & Levers' 18-16-30, lcn.

SAN JUAN—Continental Oil Co.'s Munoz 17, 2-29-19, bailer trouble 5778 ft. T. C. N. Oil Co.'s Lanier 1, 5-29-11, sd 547 ft. Huntington Park Oil Co., 29-30-9, sd 4585 ft. Huerfano Oil Co.'s Wiltbank 1, 25-29-11, sd 800 ft. San Juan Pet. Co.'s 1, 9-29-13w, sd 2950 ft. Kirtland Dr. Co.'s Hunt 1, 10-29-15, td 350 ft, repairing. Kuntz Canon O. & G. Co.'s Day 1, 29-28-11, td 270 ft. Midwest Refining Co.'s State 1, se 36-22n-14w, dr 550 ft. Blackrock Oil Co.'s 1, sw 11-25n-13w, dr 410 ft.

SAN MIGUEL—E. Adams et al's Deason 1, 14-15n-16e, sd 1235 ft. H. E. Hoover Co.'s Sanguijuela, se 18-17n-17e, dr 2060 ft.

TORRANCE—Duran Dome Oil Co.'s 1, 31-10e, waiting for repairs, td 1132 ft. Hall et al's 2-14, sd 1600 ft. Bluhall O. & G. Co., 20-6n-Pinos Wells 1, sw 25-3n-13e, dr 450 ft.

VALENCIA — Acme Oil Co., N. M.-Ariz. Land Co., 26-6-3, dr 2900 ft.

COLORADO

BENT—Marland Oil Co.'s Pipe Springs 1, se 27-29s-49w, dr 507 ft.

JACKSON—Producers & Refiners' Hendershot 1, ne 2-26n-81w, dr 600 ft.

JEFFERSON—Wood et al's 1, 30-3s-69, dr 2700 ft.

LAS ANIMAS — Reiter-Foster and Phillips Pet. Co., 23-29n-56, dr 2600 ft. Avalier Pet. Co.'s Branson 1, ne 3-35s-58e, ready to sp.

LA PLATA—Childers Dr. & Pr. Co.'s Dry Mesa 1, 29-32n-14w, dr 660 ft. Royal P. & Ref. Co.'s Red Mesa 1, 27-33n-12w, rig.

LINCOLN—Kelly Oil Co.'s State 1, nw 36-14s-57w, dr 500 ft.

MESA—Eureka Oil Co.'s Holly 2, 24-1s-1e, sd 925 ft. Peerless Oil Co.'s Hoel 1, ne 23-8s-104, prep to deepen 2058 ft.

MORGAN—Badger Creek O. & G. Co.'s Kent 1, sw 2-2n-57w, dr 270 ft.

MONTROSE—Uncompahgre O. & G. Co., nw 27-50n-10, rig up.

MOFFAT—Reiter-Foster's State 1, 16-12-100, sd 2240 ft. Yarg P. & R. Co.'s 205, 26-4n-92w, undrr 3972 ft. Alliance Oil Co.'s Williken 1, 14-4n-92w, dr 3295 ft. McCormick et al's Sales 1, se 28-4n-92w, dr 265 ft.

RIO BLANCO—Texas Prod. Co.'s Freeman 1, 27-3-94, sd cem, td 5872 ft. Argo Oil Co., se 9-2s-96w, sd ready to sp. Union of Calif.'s U. S. Consol 1, 10-2n-88w, sp 60 ft.

ROUTT—Great Western Oil Co.'s State 1, 17-60n-56w, sd 2504 ft.

YUMA—Etnyre Synd., sw 7-2s-43, sd 900 ft.

UTAH

GRAND—Utah Oil Refining, Moab Consolidated, Utah Southern, Salt Valley 1, 13-23-21, dr by tools at 360 ft. Utah Southern and Moab Consolidated's Shaffer 1, 36-26-20, reshot bump, co to run pipe, td 1665 ft. Navajo Petroleum Co.'s 2-20-21, waiting completion of water line, td 1400 ft. Western States Development Co.'s sw 27-12s-19e, dr 1585 ft. Big 6 Oil Co.'s Randall 1, 10-22-19, dr 800 ft. Brendell Sons' Crescent Eagle 2, 9-22-19, sp.

NAVAJO RESERVATION—Continental Oil Co.'s Boundary Butte 1, 31-43-21, sdtr tools at 3680 ft.

SAN JUAN—Boulder Knoll O. & G. Co.'s 1, 17-34-25, undrr 6¼-in to bottom for water shutoff.

UINTA—Western Venture Oil Co.'s Krumvieda 1, 6-5-21, cem cas to 923 ft. Maude Ellen Oil Co.'s 1, 28-3-21, resum at 1080 ft.

MILLARD—Beaver Valley Oil Co.'s Blackrock 1, 20-25s-9w, dr 3400 ft.

UTAH—Diamond Oil Co.'s 3, ne 28-8e-4e, resuming 1575 ft.

WAYNE—Phillips Pet. Corp., 16-27-16, dr 2600 ft.

MONTANA

BLAINE—Ohio Oil Co.'s Winngert 1, 3-34n-22e, dr 750 ft.

CASCADE—Winther et al's Roth 1, sw 11-22-1e, sd 1010 ft.

CARBON—Ohio Oil Co.'s Northern Pacific 1, 11-7s-21e, sdtr at 4428 ft.

CHOTEAU—Williston-Shelby's Flack 1, se 12-28-11e, dr 2200 ft.

GARFIELD—Carroll Bros., ne 6-14n-31e, dr below 950 ft.

HILL—Jones Oil Co.'s Mangnell 1, 32-32-14, will use as water well. Jones Oil Co.'s Mangnell 2, nw 32-34-14, rig. McFarland et al's Boxelder 1, sw 15-30-13e, dr 1720 ft.

LIBERTY—Square Deal Oil Co.'s Federal Bank 1, se 1-32-72, dr 1600 ft.

PONDERA—Calpet's Copley 1, ne 14-27-4w, dr 1800 ft. Continental Dev. Co.'s Gjullin 2, nw 15-27-4w, test at 2005 ft. Calpet's Kingsbury 1, sw 15-27-4w, dr 1900 ft. Texas-Pacific Coal & Oil Co.'s Hirshberg 2, 14-27-4w, dr 1950 ft. Texas-Pacific Coal & Oil Co.'s Hirshberg 3, 14-27-4w, dr 400 ft. McCracken et al's Gjullin 1, 10-27-4w, dr 1700 ft. Ohio Oil Co.'s Hirshberg 1, 15-27-4w, dr 1725 ft. Peerless Dev. Co.'s State 1, sw 16-27-3w, dr 800 ft. Fulton Pet. Corp.'s State 2, nw 16-27-4w, dr 700 ft. Texas Pacific's Hirshberg 4, sw 14-27-4w, rig up.

TETON—Elkhorn O. & G. Co.'s 1, ne 12-24-1e, sd 125 ft. "56" Pet. Corp.'s Speer 1, ne 4-25-1e, dr 1200 ft. Mitchener et al's Willick 1, ne 18-24-1e, dr 1700 ft. C. L. Archer et al's 1, se 31-26-1e, dr 1450 ft. Hardrock Oil Co.'s Speer 2, sw 5-25-1e, dr 1340 ft. Fulton Pet. Corp.'s Hirshberg 1, ne 22-27-4w, lcn.

WYOMING

BIG HORN—Utah Southern Oil Co.'s 3, 29-56n-97w, dr 3498 ft. Producers & Refiners' 3, 24-56n-98w, cem 10-in at 2555 ft. Assurance Oil Co., 25-51n-93w, rig. Prescott-Bert 3, 30-51n-92w, sp. Cross Gas Co.'s 1, 23-26n-97w, cas cem 1934 ft. Ohio Oil Co.'s Cross Gas 2, dr 3266 ft.

CARBON—Graybeal Dome Synd., 16-28n-80w, cas trouble 4600 ft.

CONVERSE—Hollingsworth & Gorham, ne 8-32-72, water at 800 ft. Criterion Oil Co.'s Irvine 1, 5-31-70, sd at 800 ft, will resume.

FREMONT—Producers & Refiners' Muskrat 1, 34-34-92, re-run 6¼-in at 4070 ft. Texas Prod. Co.'s Alkali Butte 1, 1-33-95, bldg derrick 3915 ft. Martin Falk's 2, ne 9-31n-98w, dr in blue lime. R. A. Brett et al's Haywire 1, se 29-32n-98w, sd . Solar Pet. Co., 29-32n-98w, cas cem 2100 ft.

HOT SPRINGS—Texas Prod. Co., sw 23-45n-100w, lcn.

JOHNSON—Fairway Oil Co.'s Crazy Woman 1, resuming 2367 ft. Tarrant Synd., 17-46n-82w, abn.

NIOBRARA—Buck Creek Oil Co., 4-36n-62w, dr 2562 ft.

PARK—California Exploration Co.'s 1A, 29-48-103, dr 1304 ft. Fred G. Ostland's Hoodoo Ranch 1, 23-51-102, td 1740 ft. E. H. Rosenburg, 25-58n-98w, dr below 1800 ft. California Exploration Co. and P. & R.'s Pitchfork 1, 14-48n-102w, sdtr 15¼-in at 780 ft. Ohio Oil Co., 27-52-100, co 3685 ft. Lenco Pet. Co., 27-52-100, sd 100 ft. Ydoc Oil Co., ne 6-15n-101w, sd 735 ft. Union of California's Taylor 1, 22-47-101, co 3780 ft. N. F. Clark et al, se 11-49n-102w, dr 1605 ft. Resolute Oil Co., nw 17-57-101, dr 1450 ft. S. C. Ferdig's Nelson 1, 4-51-102, rig up.

McCollum
Exploration Company

Contracts taken for Seismograph Work

UNITED STATES	FOREIGN COUNTRIES
5522 Connecticut Ave.,	1211 Esperson Bldg.,
WASHINGTON, D. C.	HOUSTON, TEXAS

ALUMINUM PAINT

Reduces the "Sun Tax"

EVERY oil man pays the "sun tax"—precious oil sucked up by the sun's hot rays—extra profits evaporated into thin air.

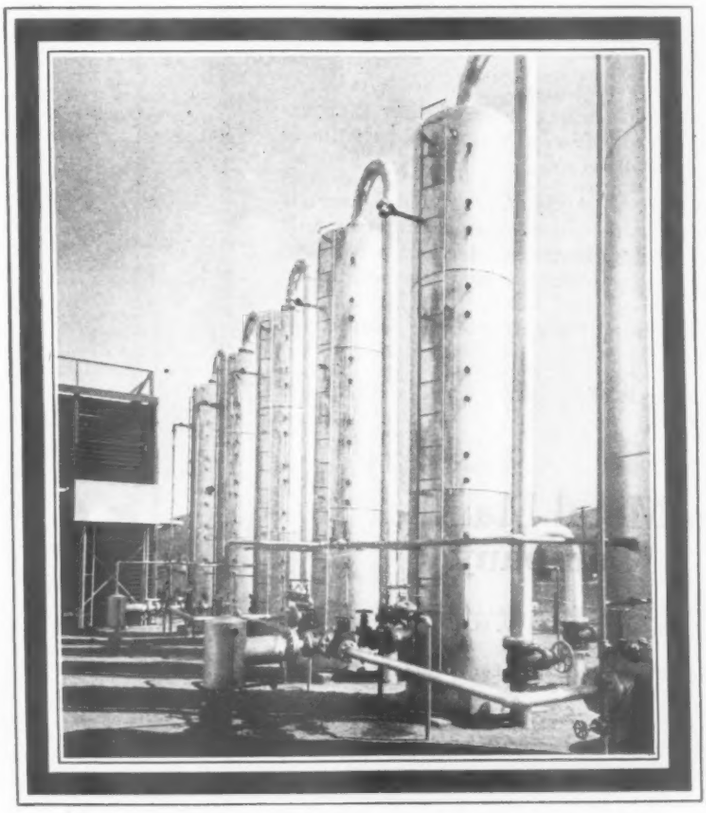
All over the oil fields Aluminum Paint is reducing this needless waste by keeping tanks and refinery equipment cooler. Aluminum Paint reflects the sun's rays instead of absorbing them. Thus it materially reduces oil evaporation.

And, at the same time, Aluminum Paint gives remarkable protection to all kinds of exposed oil equipment—whether of iron, steel, wood, brick or concrete.

Its tiny flakes of pure Aluminum overlap—leaf together—form a protective coat-of-metal over every painted surface. This coat of pure Aluminum is non-rusting and highly resistant to corrosion and the deteriorating effects of gases and fumes—even those of hydrogen sulphide.

Aluminum Paint is decidedly economical. It spreads farther, covers better and lasts longer than ordinary paints. Yet it costs no more.

Let us send you a copy of the booklet, "Aluminum Paint, The Coat-of-Metal Protection." It contains important information for every man in the oil industry.



Aluminum Paint protects these absorption towers of the Standard Engineering Company at Newhall, California and at the same time conserves their highly volatile contents by keeping them cooler.

ALBRON ALUMINUM ALUMINUM BRONZE POWDER

Trade Mark

The pigment base for the better grades of Aluminum Paint is ALBRON made of pure ALCOA Aluminum.

In buying Aluminum Paint, tell your dealer how you propose to use it—and whether indoors or out. Most good paint dealers are prepared to furnish the kinds best suited to your needs. If yours is not, write us, giving his name and address, and we will see that he is supplied.

ALUMINUM COMPANY OF AMERICA
2419 Oliver Building, Pittsburgh, Pa.
Offices in 19 Principal American Cities

ALUMINUM IN EVERY COMMERCIAL FORM

THE COAT OF METAL PROTECTION

ALUMINUM PAINT

"IT LEAFS"

See the holes?

For Super-Sub-Drainage Use Armco Perforated Pipe

Here is a pipe which greatly simplifies the problem of sub-drainage, often so great in oil field work. For Armco Perforated Pipe is Armco Corrugated Culvert with tiny holes in the valleys which keep land drained where rapid drainage is essential.

These perforations are so small that they exclude practically all foreign matter, and the lower third of the culvert is solid.

This pipe, like all Armco Corrugated Culvert, is flexible and is made of pure Armco Ingot Iron. It can be laid as close to the surface as is necessary. Easily handled by unskilled labor its installation costs are amazingly low and its material and fabrication assure long, trouble-free life with 100% salvage value.

Ask the nearest of our three big Texas factories for full details.

Western Metal Manufacturing Company

EL PASO, TEXAS P. O. Box 598 | HOUSTON, TEXAS P. O. Box 1353 | DALLAS, TEXAS P. O. Box 818 | SAN ANTONIO, TEXAS 520 Carolina St.

P. O. Box 1370, Arcade Station, Los Angeles, California.

1228

Ayer & Lord Tie Co.

Incorporated 1893

Railroad Cross Ties Lumber Poles

CHICAGO

Bridge Timbers Car Stocks Piling Posts

Treating Plants

Carbondale, Ill. Grenada, Miss. North Little Rock, Ark. Louisville, Ky. Montgomery, Ala.

"WE SPECIALIZE IN TELEPHONE POLES"

OKLAHOMA

WOODS COUNTY—T 28n, R 18w, Sec. 11, Geo. Vincent et al's Freedom 1, c sw, ponds.

HARPER COUNTY—T 27n, R 21w, Sec. 24, A. F. Kopisch Oil Co.'s Selman 1, nec se, spudded and sd.

WOODS COUNTY—T 27n, R 15w, Sec. 20, Sooner State Oil Co. and E. R. Black's Marcum 1, c sw, spudded and sd.

GRANT COUNTY—T 27n, R 5w, Sec. 18, J. W. Bailey's Custard 1, c se, ts 4835-60 ft, 800,000 gas, ts 4878-83 ft, slight increase in gas, 4878-96 ft small show oil, dr 4930 ft. T 26n, R 4w, Sec. 34, Sooner State Oil Co.'s Royce 1, swc nw, sd 550 ft.

KAY COUNTY—T 26n, R 2e, Sec. 32, J. A. Vincent and National Union Oil Co.'s McNeal 1, nwc ne, sd 2795 ft.

HARPER COUNTY—T 25n, R 22w, Sec. 14, Hoffer Oil Co., Cooper 1, nwc se, sd 4182 ft, litigation.

GRANT COUNTY—T 25n, R 4w, Sec. 22, Cowden's Vollner 2, nec se ne sw, lost tools 5640 ft, sd.

KAY COUNTY—T 25n, R 1w, Sec. 15, Tonkawa Dev. Co.'s McDaniels 1, sec, sd 4663 ft.

NOBLE COUNTY—T 24n, R 3e, Sec 11, Geo. Miller et al's Howe 1, c nw se, dr 1840 ft. T 20n, R 1w, Sec. 22, Marland Oil Co. et al's Kidd 1, nwc sw, Wilcox sand 5196-5200 ft, coring. dr 5273 ft.

TEXAS COUNTY—T 1n, R 18 ecm, Sec 11, Three Way Oil Co.'s Price 1, sec nw, sd 3490 ft.

WOODWARD COUNTY — T 24n, R 17w, Sec. 32, Otstot Dev. Co.'s Simmons 1, sec, sd 1500 ft.

GARFIELD COUNTY—T 24n, R 6w, Sec. 9, Pulse & Beamer's White 1, sec nw, sd 4720 ft, will abnd. T 24n, R 3w, Sec. 14, Sagar Oil Co.'s Grasarch 1, sec, dr by casing 4767 ft. Sec. 24, Champlin & Marland's Stoner 1, owd, nwc se, co 4315 ft.

ELLIS COUNTY—T 21n, R 25w, Sec. 9, Oklahoma Northern Oil Co.'s 1, c se nw, sd 300 ft.

WOODWARD COUNTY—T 21n, R 19w, Sec. 15, Burgoyne Bros.' 1, swc se ne, ur 10-inch at 1305 ft. T 21n, R 21w, Sec. 25, Sharon's Elmore 1, swc, rig blown down, td 2778 ft.

GARFIELD COUNTY—T 20n, R 4w, Sec. 9, Marland Oil Co.'s Looman 1, nec se, sd 2735 ft, csg parted. Sec. 12, Marland Oil Co.'s Miller 1, swc, sd 4586 ft.

DEWEY COUNTY—T 18n, R 15w, Sec. 9, Huckleby & McCoy Perfect 1, nec, ur 5-inch 4365 ft.

LOGAN COUNTY—T 18n, R 3w, Sec. 33, Haley & Consolidated Drilling Co.'s Quier 1, sec sw, run 5-inch casg past tools 3950 ft, fish bailer. T 18n, R 2w, Sec. 21, Tibbets & Band et al's Donohue 1, swc nw se, rig. T 17n, R 1e, Sec. 28, T. B. Slick's Berry 1, sw se, td 5730 ft, pb to 4700 ft.

KINGFISHER COUNTY — T 16n, R 7w, Sec. 6, Gault Brown Oil Co.'s Campbell 1, c nw se, sd 4516 ft. T 16n, R 6w, Sec. 27, Crawford & McKenna's Sturgeon 1, nec nw, sd 4509 ft.

BLAINE COUNTY—T 15n, R 12w, Sec. 20, W. J. Donley's Dickens 1, sec ne, ur 10-inch 1765 ft.

CANADIAN COUNTY—T 14n, R 6w, Sec. 9, A. D. Spears' Piatt 1, swc ne, sd 3223 ft.

OKLAHOMA COUNTY—T 13n, R 3w, Sec. 18, T. B. Slick & Bailey's Lufkin 1, c ne, sd 4510 ft. T 12n, R 3w, Sec. 15, Cromwell et al's Thompson 1, swc ne ne, dr 6910 ft.

OKLAHOMA COUNTY—T 11n, R 3w, Sec. 24, I. T. I. O. Co.'s Park 1, c se se, dr 4056 ft, 25 M gas.

CANADIAN COUNTY—T 10n, R 6w, Sec. 1, J. M. V. Bailey's Robinson 1, c ne, spudded and sd.

OSAGE COUNTY—T 25n, R 6e, Sec. 25, Amerada's 1, ne cor sw, dr 1427 ft.

PAWNEE COUNTY—T 22n, R 5e, Sec. 15, Wahoma O. & G. Co.'s Buffalo 1, sec, sd 1490 ft.

PAYNE COUNTY— T 18n, R 3e, Sec. 35,

Garber, Pulse & Gloyd's Widows 1, nec se nw, sd 1200 ft.

LINCOLN COUNTY—T 17n, R 3e, Sec. 20, Willis O. & G. Co.'s Gunn 1, nwc se, sand 4714-52 ft hfw, dand a. T 13n, R 4e, Sec. 16, Bu-Vi-Bar Pet. School Land 1, c ne se, dr 4600 ft.

OKFUSKEE COUNTY—T 12n, R 10e, Sec. 31, Barnsdall's Tiger 1, swc ne, dr 2900 ft. T 11n, R 10e, Sec. 4, Moose & Daniels' Stidham 1, swc nw, sd 622 ft.

MUSKOGEE COUNTY—T 13n, R 17e, Sec. 34, Elk Drlg. Co.'s McKee 1, csl se se se, sd 160 ft. T 13n, R 18e, Sec. 33, L. T. Haynie's Linder 1, c se, sd 2107 ft.

PITTSBURG COUNTY—T 9n, R 16e, Sec. 32, Pattison et al's McDuff 1, swc nw se, 3M gas at 1325-90 ft, 2M gas at 1890-95 ft, Bradenheaded Cromwell sand 3M gas 4472-4525 ft, 3M gas 4613-35 ft, dr 5519 ft.

HASKELL COUNTY—T 9n, R 18e, Sec. 10, Marion Oil Co.'s Sanders 1, nw ne sw, dr 2345 ft.

LATIMER COUNTY—T 5n, R 18e, Sec. 15, Limestone O. & G. Co.'s Murray 1, swc, co 1700 ft.

POTTAWATOMIE COUNTY—T 10n, R 3e, Sec. 12, Sikes, Kilgore & Shaffer's Ives 1, c se se, dr by 5-inch at 5490 ft.

SEMINOLE COUNTY—T 10n, R 6e, Sec. 3, Superior's Davis 1, swc se, 3967 ft, ru, st. T 10n, R 7e, Sec. 18, Shaffer et al's Jones 1, swc ne, td 4710 ft, hfw.

HUGHES COUNTY—T 9n, R 10e, Sec. 26, Fuhrman Pet. Co.'s Buck 1, ne nw se, td 2584 ft, 12M gas, dr 2830 ft.

POTTAWATOMIE COUNTY—T 8n, R 2e, Sec. 24, Superior's Jones 1, sw nw ne, fsh 4660 ft.

HUGHES COUNTY—T 8n, R 10e, Sec. 1, Bauer et al's Penn 1, nwc sw ne, hd 2350 ft, 10-inch csg collapsed.

CLEVELAND COUNTY—T 7n, R 1w, Sev. 15, Sooner Oil Co.'s Vandeveer 1, ne nw sw, 3120 ft, sd.

POTTAWATOMIE COUNTY—T 7n, R 2e, Sec. 17, T. B. Slick's Spangler 1, nw se nw nw, dr 4635 ft.

SEMINOLE COUNTY—T 7n, R 6e, Sec. 7, Simon and Beam's Palmer 1, ne nw ne, rig.

POTTAWATOMIE COUNTY—T 6n, R 5e, Sec. 16, T. B. Slick's School Land 1, sec, 4597 ft, set 5-inch, 4662-85 ft td, hfw, sd. Sec. 20, Roxana's Deister 1, nwc se ne, dr 3987 ft, hf sulphur water.

SEMINOLE COUNTY—T 6n, R 6e, Sec. 1, T. B. Slick's Moore 1, sw ne sw, sand 2870-td 2875 ft hfw. pb to 2760-75 ft pump 200 bbls water and 7 bbls oil. Sec. 10, Gypsy Oil Co. et al's Davis 1, se ne se, co 4066 ft. T 6n, R 7e, Sec. 4, Shaffer O. & R. Co.'s Carolina 1, se sw ne, dr 750 ft.

HUGHES COUNTY—T 6n, R 8e, Sec. 32, T. B. Slick's Epperly 1, nw ne nw, fsh 2245 ft. T 5n, R 9e, Sec. 17, E. W. Whitney's Huddleston 1, sec sw, setting 12-inch at 1005 ft.

GARVIN COUNTY—T 4n, R 3e, Sec. 10, Garland Oil Co.'s Strickland 1, sw nw sw, 2790 ft, ur 6 -inch.

PONTOTOC COUNTY—T 3n, R 8e, Sec. 10, Douglas' Johnson 1, c nw nw, dr 2403 ft.

COAL COUNTY—T 2n, R 8e, Sec. 5, Wichtex Oil Co.'s Folsom 1, c nw nw, lcn.

MURRAY COUNTY—T 1n, R 2e, Sec. 17, Revels & McGee's Wolfe 1, nwc, sd 822 ft.

COAL COUNTY—T 1n, R 8e, Sec. 35, W. E. McGraw et al's Patten 1, sw se ne, dr 3365 ft. T 1n, R 9e, Sec. 24, Galbreath et al's Jones 1, swc se, spudded and sd.

CUSTER COUNTY—T 14n, R 14w, Sec. 1, W. E. Witt's 1, c sw, spudded and sd.

CADDO COUNTY—T 12n, R 11w, Sec. 15, Abernethy & Ashton's 1, c nw, dr 3490 ft.

ROGER MILLS COUNTY—T 11n, R 26w, Sec. 4, L. C. Hivick's 1, c nw ne, rur.

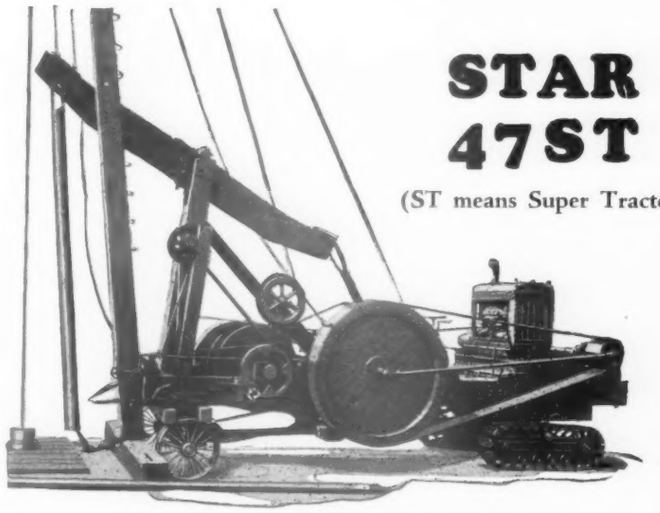
BECKHAM COUNTY—T 9n, R 22w, Sec. 32, O. & H. Pet. Co.'s Barnes 1, owd, fsh at 3420 ft.

KIOWA COUNTY—T 7n, R 15w, Sec. 35, David Malernee's Van Kirkland 1, nwc, sd 858 ft. T 6n, R 15w, Sec. 6, Johnson's McDowell 1, c sw ne, sd 1625 ft.

CADDO COUNTY—T 6n, R 12w, Sec. 29, W. J. Hartley's Gilbreath 1, sec nw se, owd, sd 3395 ft.

KIOWA COUNTY—T 5n, R 14w, Sec. 17, Blue Mt. Oil Co.'s Jones 1, sec nw nw, sd 625 ft.

GRADY COUNTY—T 4n, R 7w, Sec. 21,



STAR 47ST

(ST means Super Tractor)

Cuts New Drilling, Cleaning-Out Costs

DESIGNED especially for new drilling up to 2500 feet; for heavy lease maintenance work and for drilling in wells carried to the sand by rotary.

The 47ST has a chain driven bull reel with fast pulling speeds, a powerful sand reel and a heavy duty reverse clutch. Its 90 H. P. motor can be operated economically by natural gas using the Star Natural Gas Valve.

Moving completely assembled under its own power and with crawler type wheels that take it anywhere, this new time and labor saving drilling machine is another example of Star economy that is appealing to oil country men.

Star Bulletin No. 20 completely illustrates and describes it. Fill in the coupon below and this bulletin will be sent you without obligation.

THE STAR DRILLING MACHINE CO.,
Akron, Ohio

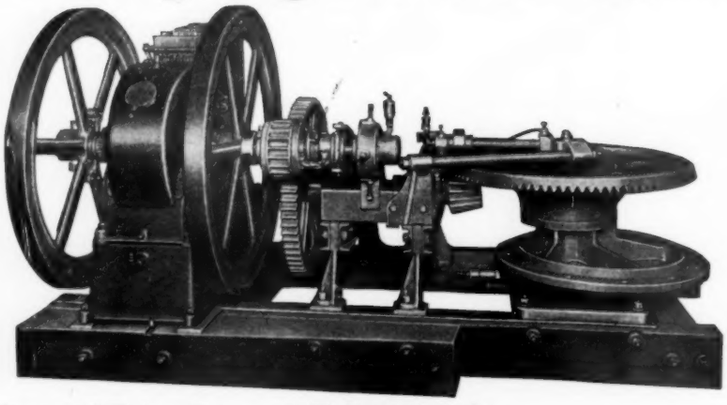
Please send us Bulletin No. 20 that illustrates and describes the new Star No. 47ST Machine.

Name .....

Address .....

Oil Weekly 8-10-28

Lightning Oil Well Pumping Power No. 3



Inverted Drive Gear. A Full 18" Stroke.
Main Eccentric Shaft 4½" Dia. Hub Bearing 17" Long.

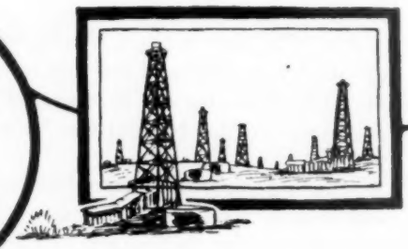
FULL AUTOMATIC POSITIVE LUBRICATION

Equipped 12 h. p. Stover Engine, Madison-Kipp Lubricator, or without engine, especially built for electric motor drive. Double gear reduction. No Counter shaft required.

Also—Lightning Beam Hangers, Pumping Jacks, Swings, Stuffing Boxes, Etc.

KANSAS CITY HAY PRESS CO., Kansas City, Mo.

EVERY-THING FOR THE OIL WELL



Billings

Chain Pipe Wrenches

Send us your orders today or write for prices and full information.

PEDEN IRON & STEEL CO.
HOUSTON – SANANTONIO – SHREVEPORT

Commercial Dev. Co.'s Crisman 1, c ne ne, d and a 3310 ft.

GRADY COUNTY—T 3n, R 7w, Sec. 8, David Malernee's Brown 1, se nw sw, dr 2250 ft.

STEPHENS COUNTY—T 2n, R 5w, Sec. 20, Smythe & Martin's Vestal 1, c ne se, sd 1149 ft.

COMANCHE COUNTY—T 1n, R 12w, Sec. 14, P. Hrbacek & A. E. Korthaus' Wilson 1, c ne sw, owd, co 3430 ft.

JACKSON COUNTY—T 1s, R 20w, Sec. 33, Stanley-McGregor's 1, sw nw sw, sd 1700 ft.

TILLMAN COUNTY—T 1s, R 15w, Sec. 9, Bray et al's Barker 1, c se nw, sd 850 ft.

STEPHENS COUNTY—T 1s, R 6w, Sec. 16, Insligs & Russell's Perry 1, nec sw nw, dr 1430 ft.

TILLMAN COUNTY— T 2s, R 17w, Sec. 23, A. J. Bundy's Hayter 1, cnl s½ se, sd 590 ft.

KIOWA COUNTY—T 2s, R 16w, Sec. 6, Landfair et al's 1, sec sw se, sd 2464 ft.

COTTON COUNTY—T 4s, R 12w, Sec. 16, Guiler & Pyson's Thomas 1, sec sw, spudded and sd.

TILLMAN COUNTY—T 5s, R 13w, Sec. 11, Everts et al's Indian 1, sw nw ne, sd 2260 ft.

JEFFERSON COUNTY—T 5s, R 8w, Sec. 28, Amerada's Emerson 1, nw se sw, dr 3185 ft.

JOHNSON COUNTY—T 1s, R 7e, Sec. 29, Smity-Kinsley's Lane 1, sec nw, sd 490 ft. T 4s, R 4e, Sec. 18, Wirt Franklin Pet. Corp.'s Wilkes 1, swc se, dr 3290 ft.

MARSHALL COUNTY—T 4s, R 4e, Sec. 35, Wirt Franklin Pet. Corp.'s Foster 1, sec sw sw nw, dr 1355 ft.

NORTHERN CALIFORNIA

Completions

ELWOOD—
Rio Grande's-Barnsdall's Luton Bell 1, 34-5-29 ..... 2400 3208

SAN LUIS OBISPO COUNTY—
Texas-Pacific Coal & Oil Co.'s-Barneberg's 1, 25-32-14..... 400 3100

KERN COUNTY

ARVIN—Texas Co.'s Pauley 1, 22-31-29, dr shale and sand.

BAKERSFIELD—Pacific Eastern Production Co.'s KCL 3, 6-30-28, flowing 4½ million cu ft gas, td 4414 ft. Jackson & Chamberlain's 1, 18-29-28, sd 525 ft.

BELRIDGE—Zurich Oil Co.'s 1, 18-28-22, sd 2790 ft.

BUTTONWILLOW — Milham Exploration Co.'s 1, 6-28-23, dr sticky shale 1260 ft. Doheny-Stone Drill Corp.'s 1, 7-29-24, sd 4280 ft. Southern California Gas Co.'s 1, 4-28-23, liner bad, sd 4270 ft.

COMANCHE POINT—W. W. Stabler's Tejon 1, 23-32-29, bailed to bottom, pulled 8¼ liner, td 2630 ft.

DELANO—Jasmine Oil Co.'s 1, 33-27-27, dr gray sand 2445 ft. S. A. Delzel's 1, 4-26-27, rigging up.

EDISON — General Pet. Corp.'s Kerwin 1, 5-30-29, pumping water and oil, plugged to 4000 ft; Kerwin 5, 32-29-29, dr loose sand 320 ft. Midway-Northern Oil Co.'s 1, 29-29-30, re-cmt 6¼-inch casing, td 3575 ft.

FAMOSA—Famosa Oil Co.'s 1, 34-27-26, dr 1384 ft.

GOULD HILLS—Bomke & Ball's 1, 19-29-20, underreaming 1810 ft. Cymric Oil Co.'s Porter 3, 36-28-20, dr fine sand 800 ft. Exeter Oil Co.'s Parry 2, 1-29-20, rig. Ozena Oil Co.'s 1, 27-29-21, running 8¼-inch casing to cmt at 2395 ft.

McFARLAND—General Pet. Corp.'s Stiles 1, 35-25-25, dr brown shale 5740 ft.

SHAFTER—North American Roy's 1, 8-28-25, sd 2545 ft.

SEMITROPIC—Lincoln Drilling Co.'s Kerwin 1, 2-26-22, dr blue shale 2710 ft.

TEHACHAPI—Crusaders Oil Co.'s 1, 21-10-10, testing 6¼ 2255 ft, td 2375 ft.

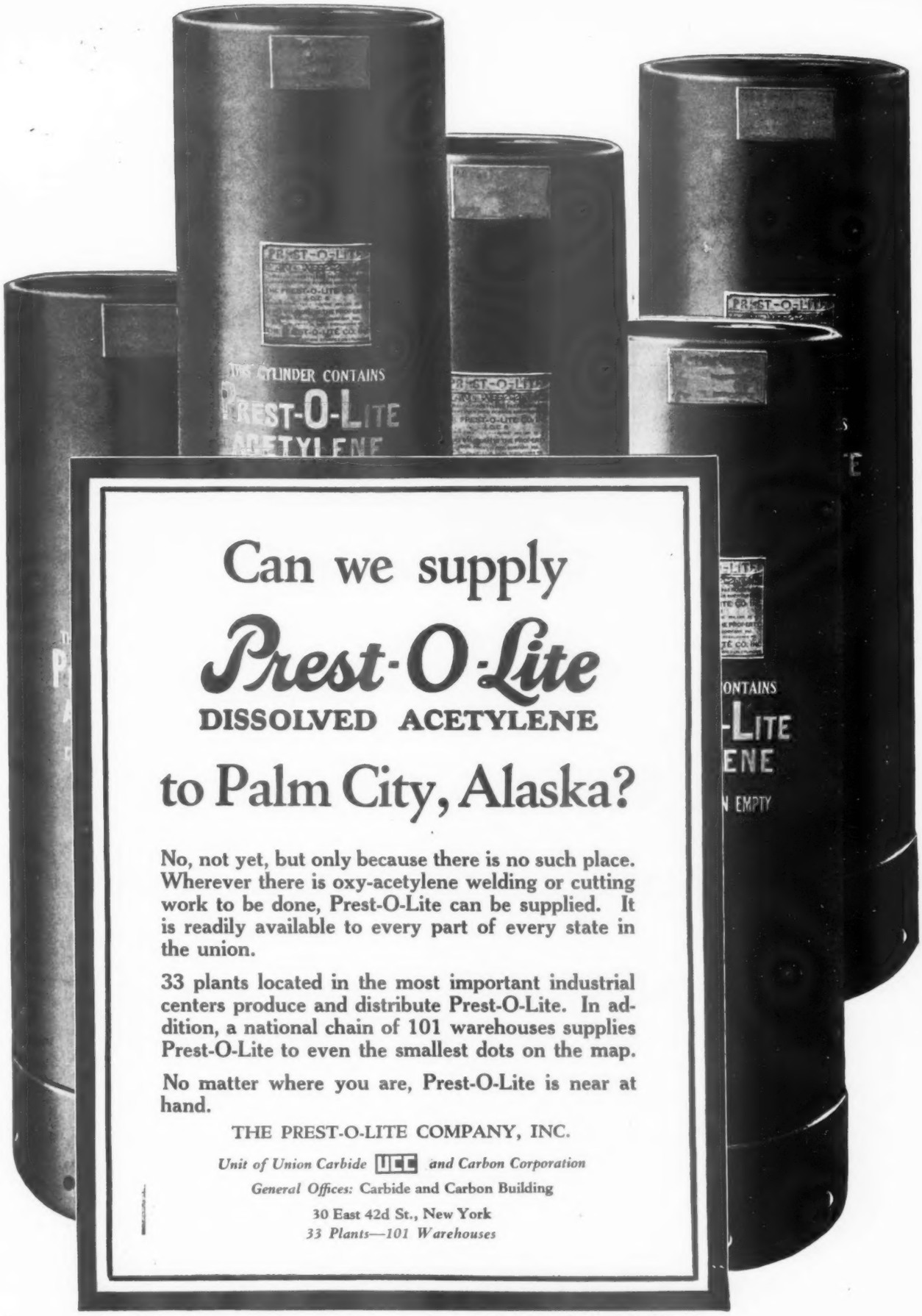
TEMBLOR—Union Oil Co.'s W. P. 1, 27-32-23, rigging up.

VENTURA COUNTY

BARDSDALE—Triple A. Investment Co.'s Elkins 1, 28-4-19, running 8⅝-inch cas, td 2665 ft.

CAMARILLO—American Oil Co.'s 1, 33-2-20, dr basalt 333 ft.

OJAI—Continental's Fox 1-M, 21-4-22, dr



Can we supply *Prest-O-Lite* DISSOLVED ACETYLENE to Palm City, Alaska?

No, not yet, but only because there is no such place. Wherever there is oxy-acetylene welding or cutting work to be done, Prest-O-Lite can be supplied. It is readily available to every part of every state in the union.

33 plants located in the most important industrial centers produce and distribute Prest-O-Lite. In addition, a national chain of 101 warehouses supplies Prest-O-Lite to even the smallest dots on the map.

No matter where you are, Prest-O-Lite is near at hand.

THE PREST-O-LITE COMPANY, INC.

Unit of Union Carbide UCC *and Carbon Corporation*

General Offices: Carbide and Carbon Building

30 East 42d St., New York

33 Plants—101 Warehouses

FORGED STEEL

FLANGES
VALVES
FITTINGS
ACID VALVES
NEILAN REGULATORS
TYCOS INSTRUMENTS
CAST STEEL FITTINGS
UNITED AIR CLEANERS
STEAM TRAPS

Shipments from Houston Stock

Maintenance Engineering Corp.

W. J. Peddie, *Pres.* Tel. Preston 5580
HOUSTON, TEXAS

Treat CUT OIL with TRET-O-LITE

the SIMPLEST MOST ECONOMICAL MOST RAPID METHOD

Just mix in Tret-O-Lite, and oil and water promptly separate. Let us send our nearest field expert to see you.

WM. S. BARNICKEL & CO.
St. Louis, Mo.
Offices and Plant:
Webster Groves, St. Louis County, Mo.

brown shale 1605 ft; Thompson 1, 22-4-22, dr shale 1660 ft. California-Ventura Oil Co.'s 4A, dr shale 1183 ft. J. W. Hackworth's McD-1, 11-4-23, sd 2215 ft.

OXNARD—Shell Co.'s Grub 1, 22-2-22, fsh for dr pipe 4250 ft; Cohen 1, 22-2-22, coring and reaming 1526 ft, td 1660 ft.

PIRU—Petroleum Securities Co.'s Diablo 1, 26-5-10, dr sand and shale 5555 ft. Rio Grande Oil Co.'s 1, 13-4-19, on prod. test, td 2150 ft. Wasibi Oil Co.'s Bishop 1, 34-3-19, dr hard sand 727 ft.

RINCON— Scott Pet. Corp.'s 1, 35-4-25, bailing water and little oil, plug at 4420 ft.

SANTA PAULA—W. W. Bryant's Anlauf 1, 21-4-21, sd 140 ft. San Pedro-Pt. Fermin's 1, 13-4-21, ur to carry 12½-inch cas 610 ft.

SIMI—Emma F. Exline's Seaton 1, 32-5-1, co 1580 ft, td 1650 ft. Shell's Berylwood 1, 32-3-20, pumping water, td 7240 ft.

SOUTH MOUNTAIN — Ring Pet. Corp.'s Converse 1, 3400 ft oil in hole, dr 4385 ft.

MISCELLANEOUS COUNTIES

FRESNO COUNTY — Fresno-Madera Oil Co.'s 1, 18-12-21, sd 4150 ft.

COLOUSA COUNTY—Continental Oil Co.'s 1A, 31-18-4, fsh 4300 ft.

HUMBOLDT COUNTY—Eureka Oil Co.'s 1, 21-4-1, changing to rotary, td 3070 ft.

KINGS COUNTY — Milham Exploration Co.'s Elliott 1, re-dr 6960 ft, td 7236 ft.

MONTEREY COUNTY—Marland's Naciemento 1, 32-24-11, dr hard shale 4583 ft.

SAN LUIS OBISPO COUNTY—Holland & Kennebrew's 1, 22-32-22, co to 1600 ft, sd. North Star Oil Co.'s 1, 5-32-13, co 1220 ft, td 3250 ft, carrying 8¼-inch casing. Panorama Oil Co.'s 1, 7-31-21, running 6¼-inch casing to carry, td 2820 ft. Richfield Oil Co.'s 1, 15-29-27, sd 3785 ft. San Luis Synd.'s 1, 39-31-13, sd 2825 ft. Texas-Pacific's 1, 25-32-14, comp as 400 bbl well, td 3100 ft. Union's Russ 1, 34-32-15, re-dr 1626 ft, td 3075 ft; Chandler 1, 12-32-15, dr 174 ft. Waklin Pet. Co.'s 1, 27-27-11, 4½-inch cas cmt 2410 ft, td 2610 ft.

SAN MATEO COUNTY — Shell's Butts 1, 21-6-5, rods pulled, td 3090 ft; Cowell 1, 8-6-5, sd 2665 ft.

SONOMA COUNTY — Shell's M-1, 8-5-7, flowing dry gas, td 2140 ft.

TULARE COUNTY — Ducor Drilling Co.'s 1, 29-23-27, co below 4½-inch casing 4100 ft, td 4160 ft.

SOUTHERN CALIFORNIA

BELLFLOWER—World Pet. Corp.'s Blythe 1, fsh for bit, gas showings, td 2910 ft.

CALABASAS—Easton & Smith's Morrison 1, dr shale 2800 ft.

CHATSWORTH—Russel Pet. Co.'s Joughin 1, dr 300 ft.

COSTA MESA—Mesa Pet. Corp.'s B. G. 1, testing showings at 3245 ft.

DAVIDSON CITY—Cailfornia Well Drilling Co.'s Del Amo 1, will re-test at 7555 ft.

DOMINGUEZ — Dominguez Extension Oil Co.'s R. B. 1, sd 5510 ft.

DOWNEY—Associated's Taylor 1, lcn.

FULLERTON—Shell's Stern 1, coring 5646 ft.

INGLEWOOD—Ring Pet. Corp.'s Community 1, sd 5333 ft.

MONTEREY PARK — Monterey Park Pet. Corp.'s Browning 1, co 3820 ft, td 4530 ft.

PUENTE HILLS—Anchor Pet. Co.'s Hudson 1, making prod test 3640 ft.

RIVERA—Empire Drilling Co.'s Purman 1, rigging rotary.

SAN FERNANDO—Shell's Mission 1, circulating 3535 ft.

SAN JUAN CAPISTRANO—O. K. Carr's Foster 2, sd 4185 ft.

WATSON—White-Behr Consolidated's Watson 1, sd 5300 ft.

MISCELLANEOUS

RIVERSIDE COUNTY—L. R. Clark's Banning 1, dr 1810 ft. Hall Pet. Co.'s 1, 23-7-3, dr shale 800 ft. Spindletop Oil & Gas Synd.'s 1, sd 3463 ft.

SAN BERNARDINO COUNTY—Hesperia Oil & Gas Co.'s 1, dr hard sand 590 ft. Torrey Pines Oil Co.'s MacGregor 1, dr shale and lime 1566 ft. S. S. Turner's Baler 1, dr shale 1260 ft. C. R. Schuster's Ganymede 1, dr sticky shale 3333 ft.

HEYDRICK'S NEW MAPS
WEST TEXAS

County Maps
Combination Maps

Descriptions and prices on application.

HEYDRICK MAPPING COMPANY
Wichita Falls, Texas.

TEXAS SAND & GRAVEL CO., Inc.
Waco, Colorado and Amarillo, Texas
Washed and Screened Gravel and Sand, Pea Gravel, Dredged Pit run Gravel, Road Gravel, and railroad ballast.

Home Office:
1904 Amicable Bldg.,
Waco, Texas
Phone 4467 and 4468

Plants:
Waco Tascosa
Texland Ady
Colorado Saragosa

SERVING ALL THE TEXAS FIELDS

PHILLIP MAVERICK
PETROLEUM GEOLOGIST
Rust Bldg.
SAN ANGELO, TEXAS

THE FT. WORTH LABORATORIES

Field Gas Testing. Analysis of oil field brines, gas minerals and oil. Sell Thermometers, Hydrometers and Laboratory Glassware

F. B. Porter, B. S., Ch. E., Pres.
R. H. Fash, B. S., Vice-President
828½ Monroe St. Ft. Worth, Tex.

MONEY to be made in cheap fee lands; large and small tracts, Southwest Texas, New Mexico. Also leases and royalties and production. Full information, no obligation. Central Texas Land and Developing Co., 1114 Fort Worth Nat'l Bldg., 2-3812.

PATENTS
Patents Obtained, Trade Marks, Patent Causes
JESSE R. STONE
Formerly Assistant Examiner
United States Patent Office
Andrews, Streetman, Logue & Mobley
12th Floor Union N. Bk., Houston, Texas

Maurice Hirsch & Ben J. Brown
ATTORNEYS AT LAW
601-2-3 Goggan Bldg.
HOUSTON, TEXAS
Specializing in Oil Law and Land Law

PATENTS
Patents Obtained and Trade Marks and Copyrights Registered
HARDWAY & CATHEY
428-29-30 Bankers Mortgage Bldg
Phone Preston 4790 Houston, Texas

JOHN F. WEINZIERL
CONSULTING GEOLOGIST
ADVISOR ON GEOPHYSICAL INSTRUMENTS
619 Petroleum Bldg., Houston, Texas

The Proof of the Pudding

in an age of specialization we decided to specialize

Here is the result!

We divided a successful **general** oil journal into three specialized oil journals because in fairness to our readers and advertisers we could come to no other conclusion. Here, after the test of years, are the results:

1. THE OIL WEEKLY has the largest number of producer subscribers of any publication in the country **without exception;** 96.15% of its subscribers are actively engaged in the production branch of the oil industry.
2. THE REFINER AND NATURAL GASOLINE MANUFACTURER has the largest number of refiner subscribers of any publication in the country **without exception;** 94.04% of its readers are actively engaged in the refining branch of the oil industry.
3. THE FILLING STATION AND PETROLEUM MARKETER has the largest number of marketer subscribers of any publication in the country **without exception;** 98.80% of its readers are engaged in the marketing branch of the oil industry.

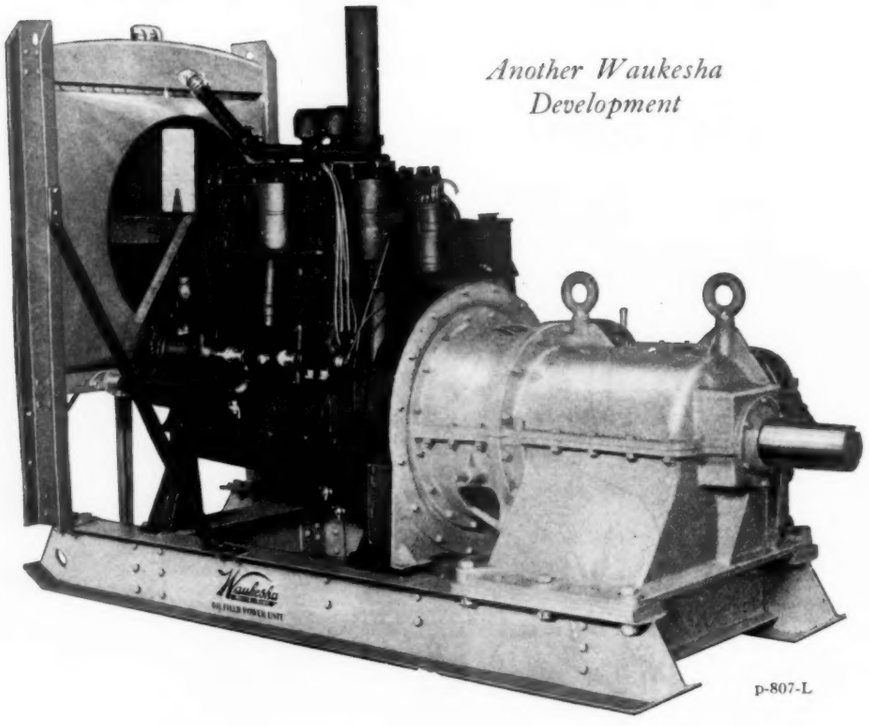
These records speak for themselves. They explain the growth of each of the Gulf Publishing Company's papers. They are food for thought for anyone interested in oil industry coverage.

A survey of the possibilities of your product in this giant industry will be mailed on request.

GULF PUBLISHING COMPANY

3301 Buffalo Drive, Houston, Texas

NEW YORK	TULSA	CHICAGO	LOS ANGELES	PITTSBURGH
Dick Swinsky	J. F. Carter, Jr.	O. R. Waller	Wm. V. Gross	W. W. Pigue
Room 832, 250 Park Ave.	214-218 Atco Bldg.	476 First National Bank Bldg.	416-417 Haas Bldg.	510 Park Bldg.



Another Waukesha Development

p-807-L

Setting a New Standard

Waukesha heavy-duty engines and Oil Field Power Units are the standard of comparison with oil production men. This Herringbone Speed Reducer is backed by two years experimental work in the field plus years of close association with the oil industry in supplying gas power units. It sets a new standard in speed reducing gears for oil field work.

These Herringbone Speed Reducers provide several novel features of particular value and interest to production men who are interested in the minimum loss of production time. The ready accessibility of the clutch, the complete yet easily removable shafts and gears due to the horizontal division of the gear box and the use of ball bearings and unusually large shafts will appeal to all practical field men. Write for Bulletin 656 describing this new unit.

P-816-L

OIL INDUSTRY EQUIPMENT DIVISION

WAUKESHA MOTOR COMPANY

Waukesha Wisconsin

New York 8 W. 40th St. | Tulsa C. F. Camp Co. | Houston Portable Rig Co. | San Francisco C. A. Watts

Exclusive Builders of Heavy Duty Gasoline Engines for Over Twenty Years

NEW EQUIPMENT, CATALOGS, BULLETINS, BOOKS

JAT Flowing System

WESTCOTT & GREIS

The JAT system of flowing wells intermittently, now being introduced to the Mid-Continent territory by Westcott & Greis, Tulsa, has been tried out in California and has been found very efficient.

By this system wells are flowed intermittently by gas lift, the eductor string or tubing alternately filling under a normal well pressure. The oil is forced to the surface at predetermined intervals by the admission of the input gas.

The system is a surface hook-up of maximum simplicity.

Two prime units compose the equipment: an electrically operated timer or "Gastributor," and the magnetic valves.

The Gastributor (Figure 1) occupies about one cubic foot of space, and is preferably operated in a control house at the central compressor plant. The function of the Gastributor is to distribute electric impulses to and close the magnetic valves which are the second unit of the system and which are placed on each individual well input gas line (Figure 2).

The Gastributor is a rugged and accurate piece of equipment that consists of a simple induction motor that operates the indicator shaft, making contact on 12 points and making it possible to flow from two to 12 wells on a system at predetermined intervals. Motor speed is regulated on the governor shaft, and operation is maintained at a constant.

When correct timing of each individual well is determined, it is found that by accurate distribution or division of input gas, it is possible to flow each well at a maximum of efficient operation. To illustrate, assume that three wells are being flowed on the straight gas lift, and are receiving 300,000 cubic feet of gas daily, or 100,000 cubic feet of gas each. On the JAT system, the total input will be cut to 200,000, approximately 33 per cent. However, as only one well receives the gas at a time, it receives it at the full rate of 200,000 cubic feet.

Figure 1

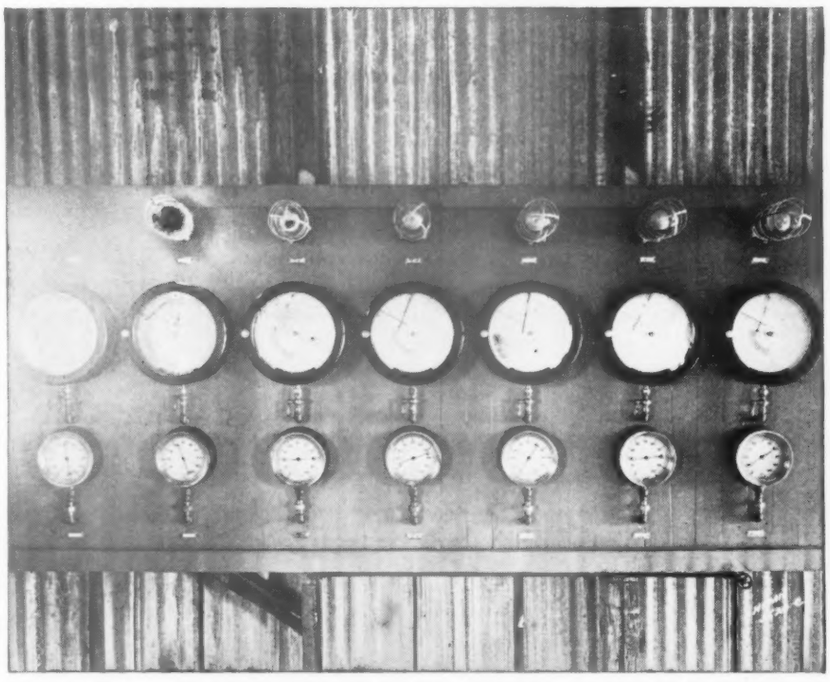


Figure 3

Figure 3 shows a complete instrument board on a six-well system. The wells operated having working pressures varying from 100 pounds to 450 pounds and are maintained at steady operation. Attention is called to the indicating gauges as they show the exact pressures at the time the picture was taken. The recording pressure gauges show the exact performance of the input gas from the compressor header. It will be noted that the light is on the well which operates at the highest working pressure, 450 pounds, of the system. The compressors are therefore required to put up the highest working pressure only while this one well is receiving gas, or one-sixth of the time; the remainder of the time, the plant is delivering gas under 200 pounds. The gauge at the extreme left of the board is a recording of the compressor discharge to the header, and the bank of lights above the gauges is installed to merely show the direction of the gas to the operator.

Installation

Installation of the JAT system is simply routine, outline of which follows: The Gastributor (Figure 1) is installed at the central plant and is connected at a terminal board by two wires led from the available light source. One wire for each magnetic value to be operated is connected to a buss bar on the cross connecting panel of the machine. A common or return for all valves may be carried back to the machine, or grounded at the valves or connected to the opposite side of the light circuit. The light bank, which is optional with the operator, in included in this plan. It is suggested that the Gastributor be installed to operate as free as possible of dust and grit. All wiring should be run in conduit. The Gastribu-

Figure 2

BUY OR RENT USED PIPE

and Save the Difference

We have the following pipe in the Panhandle District that was purchased new and used in one well:

3600′ 6⅝″ 24-lb. seamless casing.
200′ 20″ 90-lb. casing.
500′ 15½″ 70-lb. casing.
1200′ 12½″ 50-lb. casing.
2000′ 10″ 45-lb. casing.
2800′ 8¼″ 32-lb. casing.

Will rent this casing or any other pipe which you may need. Let us finance your operations by carrying your pipe and casing investment for you.

BRANCH STORES
Wichita Falls, Holliday, Vernon, Breckenridge, Texas

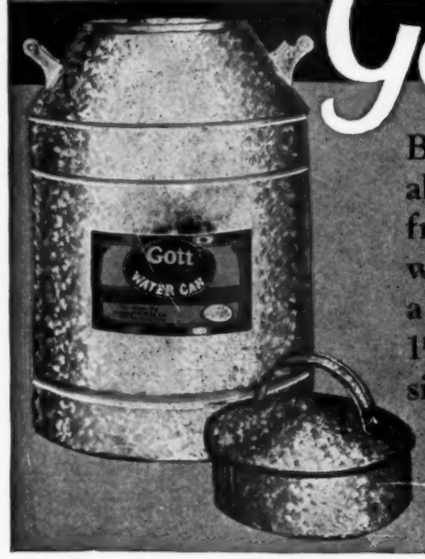
EASTERN HEADQUARTERS
Butler, Penna.

Keystone Pipe & Supply Co.

HOLMES BUILDING
FORT WORTH, TEXAS

Gott Water Can

Gottkool



Built to last—you will always be assured of a fresh supply of pure water, when you have a GOTT. Made in 1½, 3, 5 and 10 gallon sizes. Order now from your supply store.

H. P. GOTT MFG. CO.
Winfield, Kansas

CARBON (BLACK DIAMONDS) FOR DIAMOND CORE DRILLS

— IMPORTERS —
INDUSTRIAL DIAMONDS
— MANUFACTURERS —
DIAMOND POINTED TOOLS FOR ALL MECHANICAL PURPOSES

WRITE OR WIRE FOR CATALOGUE AND FULL PARTICULARS
THE DIAMOND DRILL CARBON CO.
PARK ROW, NEW YORK, N.Y. CABLE ADDRESS, CREDOTAN, N.Y.

tor is installed in the compressor plant proper in a number of instances, but it is suggested that it be installed in a control house outside of the compressor plant, if such a building be available. The system can be operated on either 110-volt A. C., 110-volt D. C., and can be changed from one source to another by throwing a switch on the control panel of the Gastributor. The magnetic valves are installed on by-passes (Figure 2) on the individual well lines leading off the compressor discharge header. The wires already described, are connected at the two terminals in the enclosed magnet case. As an impulse is received from the Gastributor, the magnet operates a pilot valve, which in turn allows gas to open the master valve, and admit gas to the line leading to the well.

Another installation plan which is economic and advantageous is possible when the JAT system is installed, will be noted from the following: A Gastributor set at the central plant, and a main input gas line run from the plant through a property and laterals in turn run from the main to the individual wells on the system. A magnetic valve is then set on each lateral, and wiring run from the central plant to the magnetic units. By this hook-up, it will be seen that considerable pipe and fittings can be eliminated and the investment is materially reduced.

Further particulars can be obtained from the company, by request.

Monarch Heavy-Duty Tractor

Monarch Heavy-Duty Tractor

MONARCH TRACTORS CORP.

Monarch Tractors Corporation, Springfield, Illinois, is announcing a new heavy-duty tractor known as Monarch 75.

The Monarch "75" is capable of producing 78 drawbar horsepower with 59 horsepower rated load as proved by official tractor tests. Its weight is approximately 22,500 pounds, which is considerably in excess of the weight indicated by the former name of 10-ton.

Among the new features provided in the "7" are tracks of pin-drive type, all manganese steel with heavy rollers engaging with the track drive sprockets; truck roller frames of heaviest construction and unusual flexibility; drop forged steel truck wheels with shafts drilled for pressure lubrication; heavy forged upper supporting rollers mounted on manganese steel

RELYT

Boiler Tubes

Charcoal Iron
for bad water conditions—

Lapweld Steel
for good water conditions—

For long tube life.

The Tyler Tube & Pipe Co.
Washington, Pa.

Texas Stock—Harrisburg Pipe and Pipe Bending Co., Houston, Texas

Oklahoma Stock—Harrisburg Supply Co., Tulsa, Oklahoma.

ASCO STEEL
STANDS SUPREME

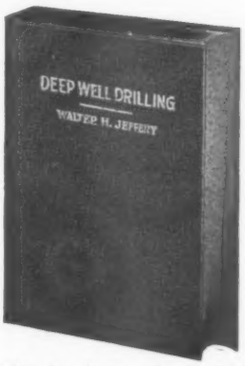
Every step in the production of Asco Steel is watched closely. From the selection of the raw materials to the finished product, the first thought always is to produce a steel that will give the best results to the makers of Oil Well Tools. Can we help you to produce better tools?

DISTRICT OFFICES:
503 Phil Tower Bldg., Tulsa, Okla.
541 McCormick Bldg., Chicago, Ill.

THE ANDREWS STEEL CO
NEWPORT KENTUCKY

Deep Well Drilling
Second Revised Edition

By Walter H. Jeffery



An up-to-date handbook on well drilling by the methods most generally used: cable, or standard, rotary, combination cable and rotary, and diamond drilling. Includes chapters on Geology, Use of Mud Fluid, Casing Methods, Use of Packers, Cementing, Electrical Drilling and Pumping, Shooting, Completing the Well by Modern Methods, Costs of Drilling, Strength of Materials, Etc. A valuable book for the technical school, for the student and for the driller and operator.

648 pages, 314 illustrations and diagrams. Postpaid, $6.00

—Lest you forget, send check today to—

THE GULF PUBLISHING COMPANY
P. O. BOX 1307 HOUSTON, TEXAS

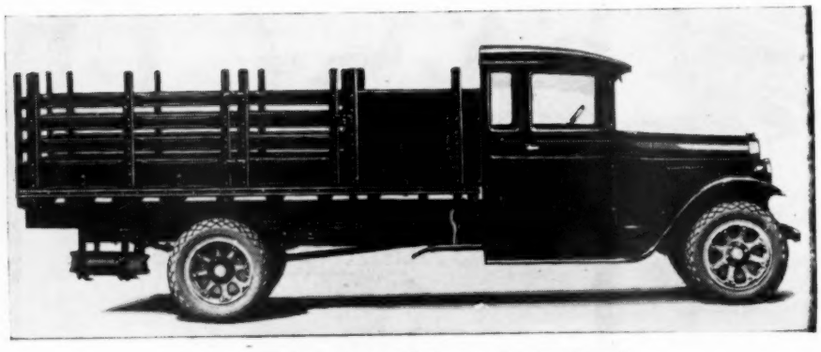
For Strength and Uniformity Use

Murray Tool & Supply Co., Tulsa, Oklahoma
T. T. Word Supply Co., Houston, Texas
A. F. Keck & Co., Butler, Pa.
Wickwire Spencer Sales Co., 1310 The Philtower, Tulsa, Okla.

WICKWIRE SPENCER STEEL COMPANY
1310 The Philtower, Tulsa, Okla.

WICKWIRE SPENCER STEEL CO.

WICKWIRE SPENCER
UNIFORM WIRE ROPE
tests better than A. P. I. specifications



New Graham One and One-Half Ton Truck

shafts turning on manganese steel bushings with oil reservoirs; heavy structural steel main frame; final drive chains contained in oil and dirt-tight housings with accessible means provided for inspection or removal of housings; heavy truck-type steering column with right or left-hand control; wide comfortable seat; motor cranked by front starting bar or by electric starter; Pur-O-Lator, which effectively filters the oil supply in the motor, etc. Throughout the tractor, features are provided to shorten the time for lubrication, inspection, adjustment or replacement.

New Rotary Bit

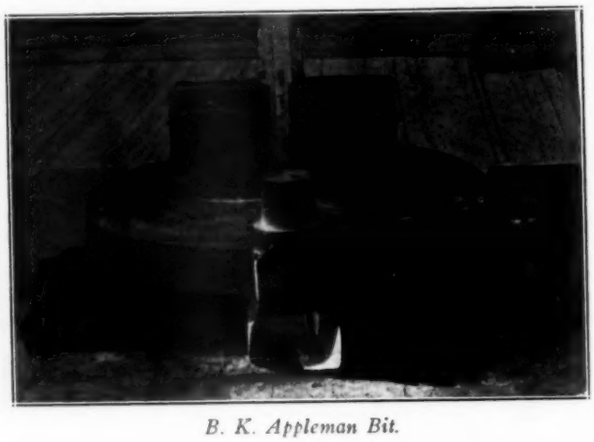
B. K. APPLEMAN

A bit said to be effective in drilling gumbo or soft formations is being marketed by B. K. Appleman, Beaumont, Texas.

In this bit the water courses extend down through the entire body with outlet on the blade just above the cutting edges. This construction feature leads the slush direct to the cutting edge, resulting it is said, to maximum cooling effect. The pressure sprayed on the cutting edges is utilized in breaking up and dispelling the cutting in solution.

The relatively thick body of the bit permitting limited space also tends to hasten the rise of cuttings and more thoroughly mixes the cuttings into the solution.

Sizes of these bits range from five and seven-eighths inches to 15 inches. Any size or type of joint can be supplied on order.



B. K. Appleman Bit.

Improved Graham Trucks

DODGE BROTHERS

A new line of six-cylinder trucks has been announced by Graham Brothers, Detroit, the truck division of Dodge Brothers. These trucks have larger capacities, longer wheelbase, four-wheel brakes and many other improvements in motive power, construction and appearance, as compared with the old line.

The new designs are Merchants Express, Commercial Truck, one and one-quarter ton, one and three-quarters ton, and two and one-half ton.

Four-wheel brakes on all models, radiator shutters operated from the dash and temperature indicators on the instrument board on all models except the Merchants Express are outstanding features.

Adoption of an internal gear, four-speed transmission in the one and one-quarter ton and heavier capacities, insures two quiet high speeds, longer engine life and greater fuel economy. Lockheed hydraulic internal expanding brakes are standard equipment on the Commercial Truck adn heavier. capacities, while Midland steeldraulic mechanical internal expanding brakes are provided on the Merchants Express. All brakes are completely enclosed.

Increased loading space and carrying capacity are insured by the longer wheelbase and roomy construction of the bodies. The wheelbase on the Merchants Express has been increased from 108 to 110 inches; the Commercial Truck wheelbase is 120 inches; that of the one and a quarter is 130 inches; the one and three-quarter ton and two and one-half ton capacities are 150 and 165 inches. Optional rear axle gear ratios and tire sizes are available. Front springs have been lengthened to 39 inches on all models except the half - ton, insuring easier riding qualities.

Safety and ease of operation are made possible by the roominess and full vision of the cabs on all models. Seat backs are of the sedan construction with wider and deeper cushions. Maximum vision is afforded by the steel corner posts, and the windshield is one piece, easily adjusted for ventilation. Throttle, spark and lighting control levers are conveniently located on top of the steering wheel.

The engine used in all capacities except the two and one-half ton has a bore and stroke of 3⅛ by 3⅞ inches with displacement of 207.99 cubic inches. Combustion chambers are machined to secure equal compression and smooth performance. A seven-bearing crankshaft, statically and dynamically balanced, has a total projected bearing area of 24.15 square inches. The engine in the two and one-half-ton model has a bore and a stroke of 3¾ by 4½ inches, the displacements being 241.45 cubic inches. Engine accessories on all models include oil filter, air cleaner, crankcase ventilator and thermostat, making certain control of the engine temperature.

One-piece tubular propeller shafts are used on the two smaller capacities and two piece shafts with self-aligning center support ball bearing on the larger models. All of the rear axles are of the semi-floating, spiral bevel gear type with four pinion differentials. Single plate clutches and Hotchkiss drive construction feature all models.

New Control Head

STEARNS ROGER MANUFACTURING COMPANY

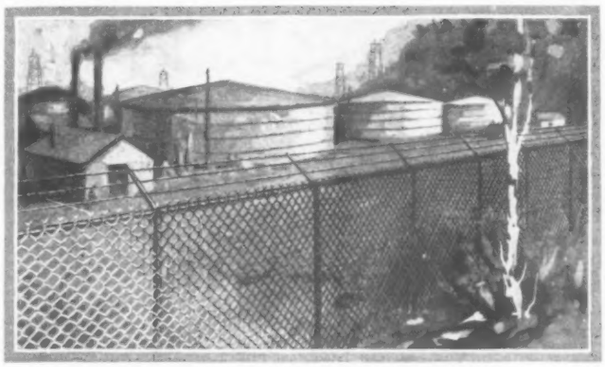
Stearns Roger Manufacturing Company, Denver, Colorado, is marketing through the Longhart Supply Company, a new pipe suspension control head.

Construction of these control heads is such, it is claimed, that practically all the volume is taken care of by means of the supporting device, leaving very little exposed to the packing means.

More information may be obtained from the company, by request.

General offices in Tulsa of the National Turnbuckle Derrick Company and Mahan, McCarty and Besse, rig builders, now are located in suite 1511-1518 in the new Hunt building. Offices formerly were maintained in the Wright building. General offices of the Acme Lumber Company, a related concern, also now are located in the new Hunt building. Frank M. Mahan of Tulsa is president of the three companies.

Fort Worth, Texas. — The Texon Oil & Land Company, which discovered the Bik Lake field and gave the West Texas district its first major oil producing area, has established a branch office on the seventeenth floor of the W. T. Waggoner building, Fort Worth, according to Frank T. Pickrell, vice president and general manager. Texon's headquarters have been maintained at the Big Lake field camp, with a branch office in New York City.



In buying fence—where per-year cost is the only real criterion of economy—it doesn't pay to compromise with quality. Without obligation, a Cyclone representative will explain the quality features which insure long-time property protection with Cyclone Fence. Phone, wire or write nearest offices.

TEXAS CYCLONE FENCE COMPANY
Works and Offices: FORT WORTH
Direct Factory Branches and Warehouses: HOUSTON, TULSA
Also Sales Offices: NEW ORLEANS, SHREVEPORT

The Mark of Dependable Property Protection

Cyclone Fence

REG. U.S. PAT. OFF.

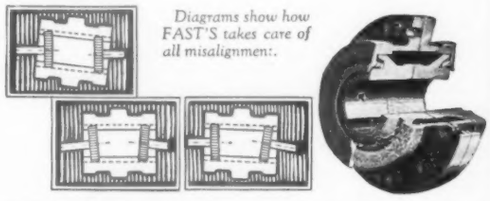
(C) C. F. Co. 1928

Nothing To Wear Out In FAST'S COUPLING

THE GREATEST forward step in the history of flexible coupling design—elimination of flexible materials. In the six years since the introduction of Fast's couplings, they have demonstrated that eliminating flexible materials eliminates replacements forever.

Two spur gears, one on each shaft end, are completely and continuously meshed in oil with the internal gears of a floating sleeve. The shafts and sleeve turn noiselessly as one unit, allowing free angular and lateral movement.

Instead of misalignment being absorbed by flexible bushings, pins, springs, discs or grids, oil between the gear teeth, under high centrifugal pressure, carries the load. There is no power loss and the coupling will last at least as long as the connected machines.



Diagrams show how FAST'S takes care of all misalignment.

THE BARTLETT HAYWARD CO.
200 Scott Street BALTIMORE, MD.

Write today for free BOOK

Approved for Field and Refinery Service

Stanley

Solid Woven Cotton Belting

Can't Bootleg

Stanley belting has no plies or layers to open up. Double and triple are both woven as one unit the same as the single. It is an absolute impossibility for the belt to bootleg.

Made in accordance with A. P. I. specifications

STANLEY BELTING CORPORATION

15 N. Jefferson St., Chicago
536 Lyons Avenue, Irvington, N. J.
124 Adelaide St., W. Toronto, Ont.
42A Southwark St., S. E. 1, London, England

WAGNER SUPPLY COMPANY OF TEXAS
Best Borger Breckenridge Cross Plains Odessa

H. E. Unsell, 119 North A. Street, Arkansas City, Kansas

W. R. Tucker
5311 Richard Ave.,
Dallas, Tel. 3-6525

James T. Sullivan
c/o Tulsa Storage & Transfer Co.,
Tulsa, Okla.
Phone 4-0151

Pacific Coast Rubber Co.,
51 Main Street,
San Francisco, Cal.

500 E. 3rd St.,
Los Angeles, Cal.

STANLEY BELTING
MADE IN SCOTLAND

"The Strongest Geared Power for Its Weight in the World"

ALL STEEL HAND HOIST
SEATTLE, U.S.A.

Mount a B. B. Bros. Hand Hoist on Your Truck for Utility Work

Weight 110 lbs.

Capacity FIVE TON STRAIGHT LINE

Size 16x17x13" High

Two Speeds 4 to 1 24 to 1

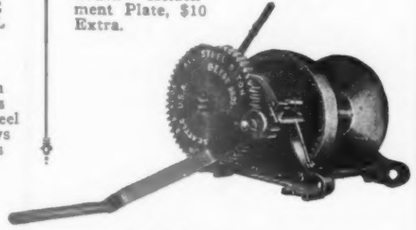
POSITIVE INTERNAL BRAKE

Construction Eight Pieces Electrical Steel Without Keys or Setscrews

Makes your truckmen more efficient in handling heavy loads and maintains a hand power unit ready for any emergency. Handles five tons with ease—because it is extra powered and extra safe.

PRICE $80

Steel Tail Hold Yoke $4 Extra. Truck Attachment Plate, $10 Extra.



Sold by
The National Supply Companies

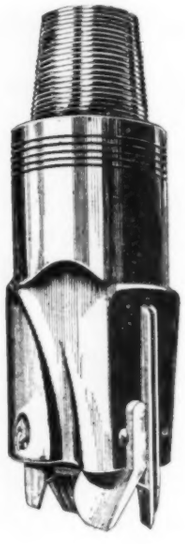
1000 feet—11″ hole 40 hours—cost 3c per foot

K-P

THE LINE OF LEAST RESISTANCE

STRAIGHT HOLE Rotary Drilling Bit

—made this speed and low cost record. A 1000 feet of 11″ hole in 40 hours, passing another well by 100 feet that was started 5 days previously, is the record made by the Klingensmith Drilling Company at Pearson Switch, Okla., with three sets of K-P self-sharpening cutters in a K-P *Straight Hole Bit. This thousand feet cost Klingensmith only $30.00 for K-P self-sharpening cutters.* The total footage was made in three round trips.



KENNEDYE-PLUMB CORPORATION

Railway Exchange Bldg., ST. LOUIS, MO.

Sold by every

"Continental" — "National" — "Oil Well" Supply Company Branch Store.

SQUEAKS FROM THE BULL WHEEL

"Have you any thumb tacks?"
"No, but I have some finger nails."

"Darling, you are the breath of my life."
"Well, why don't you hold your breath?"

"Say, you, get that car out of here!"
"We're just necking, officer."
"Oh, pardon me; I thought you'd parked next that fire plug by accident."

"What would you do if you had five dates with a man and he had never attempted to kiss you?"
"I'd lie about it."

Yes, I advertised for a good strong boy. Think you can fill the bill?
Well, I just finished licking nineteen other applicants outside the door.

"Do you know what Paul Revere said after finishing his great ride?"
"No, what?"
"Whoa!"

"Hey, I've found a tack in this doughnut!"
"Why the ambitious little thing! It must think it's a tire."

"That girl is wearing the last word in bathing suits."
"Well, if the police ever catch her, it will be a sentence."

Grandma: "Isn't it wonderful how a single policeman can dam the flow of traffic?"
Little Grandson: "Yes, but you ought to hear the truck drivers."

The old time practice of kissing the bride received a jolt at a recent wedding when an awkward-looking guest was asked if he had kissed the bride, and replied: "Not lately."

"Why the gloom, Osmond? Girl not coming to the dance?"
"Oh, she's coming, all right, but she can't even send a telegram without saying 'stop' after every sentence."

"Some men robbed the bank last night and escaped in your car."
"You say they robbed the bank? Well, then maybe they can afford to run the car."

"How did you find things down on the farm this summer? Crops good, I hope."
"Well, father did fairly well with his lunch stand, but he just about broke even on his gasoline and oil."

A venerable old Scot purchased a little radio set, and a few days later his friends asked him how he liked it.
Well, it's aw right to listen to," he replied, "but those bulbs are nae so gud to read by."

"Hey, don't spit on the floor!"
"What's matter? Floor leak?"

In Wall Street Terms

What's companionate marriage?
Interim security, no par, cumulative, free from stock liability, callable at any time.

Judge—"Have you anything to offer to the court before sentence is passed on you?"
Prisoner—"No, judge. I had ten dollars, but my lawyer took that."

"What sort of a chap is your new boy friend?"
"Not so good. When we were together last night the lights went out and he spent the rest of the evening repairing the fuse."

"What part do you have in the play?"
"Oh, I am just a poor girl who goes astray and is thrown out in the street. But where are you going?"
"Out to wait in the street."

A teacher was giving his class a lecture on charity. "Willie," he said, "if I saw a boy beating a donkey, and stopped him from doing so, what virtue should I be showing?"
Willie—"Brotherly love."

"Well," remarked a married man after examining his friend's new flat, "I wish I could afford a place like this."
"Yes," said his friend, "you married men may have better halves, but we bachelors usually have better quarters."

A colored woman went to her husband's physician and said: "Doctah, Ah's come to see if yo' gwine to ordah Rastus one of dem mustard plasters again today?"
"I think, Mandy, perhaps he'd better have one more?"
"Well, he says to ax yo' kin he have a slice of ham wif it 'cause it's mighty powerful to take alone."—Chicago Tribune.

The magistrate bent stern brows on the defendant.
"You are charged with exceeding the speed limit last night," he declaimed. "Are you guilty or not guilty?"
"Well, you can decide for yourself, Judge," replied the prisoner. "I was in that car you passed just before they pinched me."

An old negro was lying asleep in the sun while the crowd was gathering to meet the afternoon train at a country station. A drummer walked over and emptied a quinine capsule into the open mouth of the negro. The negro closed his mouth, worked it a few minutes, then woke up.
"A wants a doctor," he yelled.
"What's the matter, old man?" he was asked.
"I dunno, boss, but ah thinks my gas busted!"

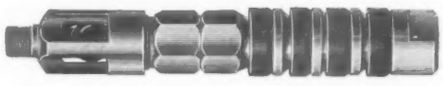
HEPPENSTALL DIAMOND "H" BIT AND JAR STEEL

No finer bit and jar steel is made than Diamond "H". Its unexcelled quality has been maintained to the most exacting standard for 37 years. Today the Diamond "H" trademark is recognized as the symbol of the highest grade cable tool steel obtainable. You have only to ask any user of this scientifically manufactured steel to confirm its time-tried merit.

HEPPENSTALL FORGE AND KNIFE COMPANY

PITTSBURGH PENNA.

FORT WORTH, TEXAS, OFFICE: 1416 F. & M. BANK BLDG.



FOR a quarter of a century Hough Pumping Specialties have been carried in stock by all good supply stores. Each year the line has been increased and engineered to meet new conditions, and so well has Hough done this job that sales have ever increased and friends have been likewise increased.

A good supply store carries a full line and the wise producer always carries a generous stock in storage.

The Chas. N. Hough Manufacturing Co.
Franklin, Penna.

Products That Cut Down Your Underground Overhead

Have a Copy Sent to Your Home

Why depend on reading the "Office Copy" when you can get a copy of The OIL WEEKLY for your own files,—sent to your home each month for

ONLY $1.00 A YEAR

Use the Coupon NOW

The OIL WEEKLY,
Box 1307, Houston, Texas.

Gentlemen: Please find enclosed one dollar (check or currency will do) for which send me your publication for one year.

Name .....

Street and No. .....

City ..... State .....

I am with the ..... Company

and my position is .....

(BE SURE TO STATE COMPANY AND POSITION, otherwise it will be necessary for us to hold up entering your subscription until we can get this information for you.)

Gulf Refining Company

OKLAHOMA
TEXAS
LOUISIANA *Refiners of* PETROLEUM

GASOLINE
REFINED OIL
NAPHTHA
GAS OILS
PARAFFINE WAX
PETROLEUM COKE
FUEL OIL
LUBRICATING OILS
CYLINDER
ENGINE
CORDAGE

Red and Pale Paraffine Oils

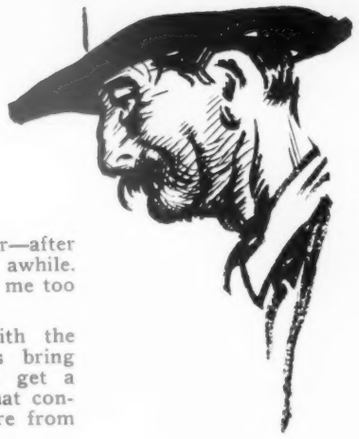
General Sales Offices: PITTSBURGH, PA.

District Sales Offices:
NEW YORK, HOUSTON, ATLANTA, BOSTON, NEW ORLEANS, PHILADELPHIA, LOUISVILLE

Ocean Terminals:

Boston (Beverly), Mass.
Providence, R. I.
New York Harbor (Bayonne, N.J.)
Jacksonville, Fla.
Port Tampa, Fla.
Mobile (Magazine Point, Ala.)
Philadelphia (Girard Point, Pa.)
Charleston, S. C.
Savannah, Ga.
New Orleans (Gretna, La.)
Port Arthur, Texas
Galveston, Texas

"Ordinary Couplings don't suit me"



"And they won't suit you either—after you've tried Harrisburg Couplings awhile. "All couplings used to look alike to me too —but not any more!

"Why should I take chances with the 'tough breaks' ordinary couplings bring when by specifying Harrisburg I get a coupling produced by a company that controls every phase of its manufacture from steel making to finishing?"

"You can't think of any good reason.

"Well, neither can I. That's why it's 'Harrisburg for mine'."

HARRISBURG PIPE & PIPE BENDING CO.

Harrisburg, Pa.

Fully Equipped with Our Own Open Hearth Furnaces, Rolling Mills and Forge Shops

DISTRIBUTORS:

Harrisburg Pipe & Pipe Bending Co. of Texas, Inc., Houston, Texas

Harrisburg Supply Co., Tulsa, Okla.

George J. Hausen, Inc., San Francisco, Los Angeles and Taft, Calif.

HARRISBURG

Forged Seamless Steel Couplings

The Patent Situation on Sand Testing Tools

It seems certain that the United States Patent Office will in the near future issue a patent on an application owned by Halliburton containing the following claim and several similar claims:

> "Apparatus for testing a well comprising a string of pipe to be lowered into the well, a packer carried by the pipe and means at the lower end of the pipe to receive a sample from the well including an inlet, and a valve for controlling the inlet, the valve being positively controlled by movement of the pipe to open and close the inlet while the packer is seated"

This advertisement is published in the interest of those operators contemplating the purchase of a device that will come within the above claim.

ERLE P. HALLIBURTON COMPANY
DUNCAN, OKLAHOMA